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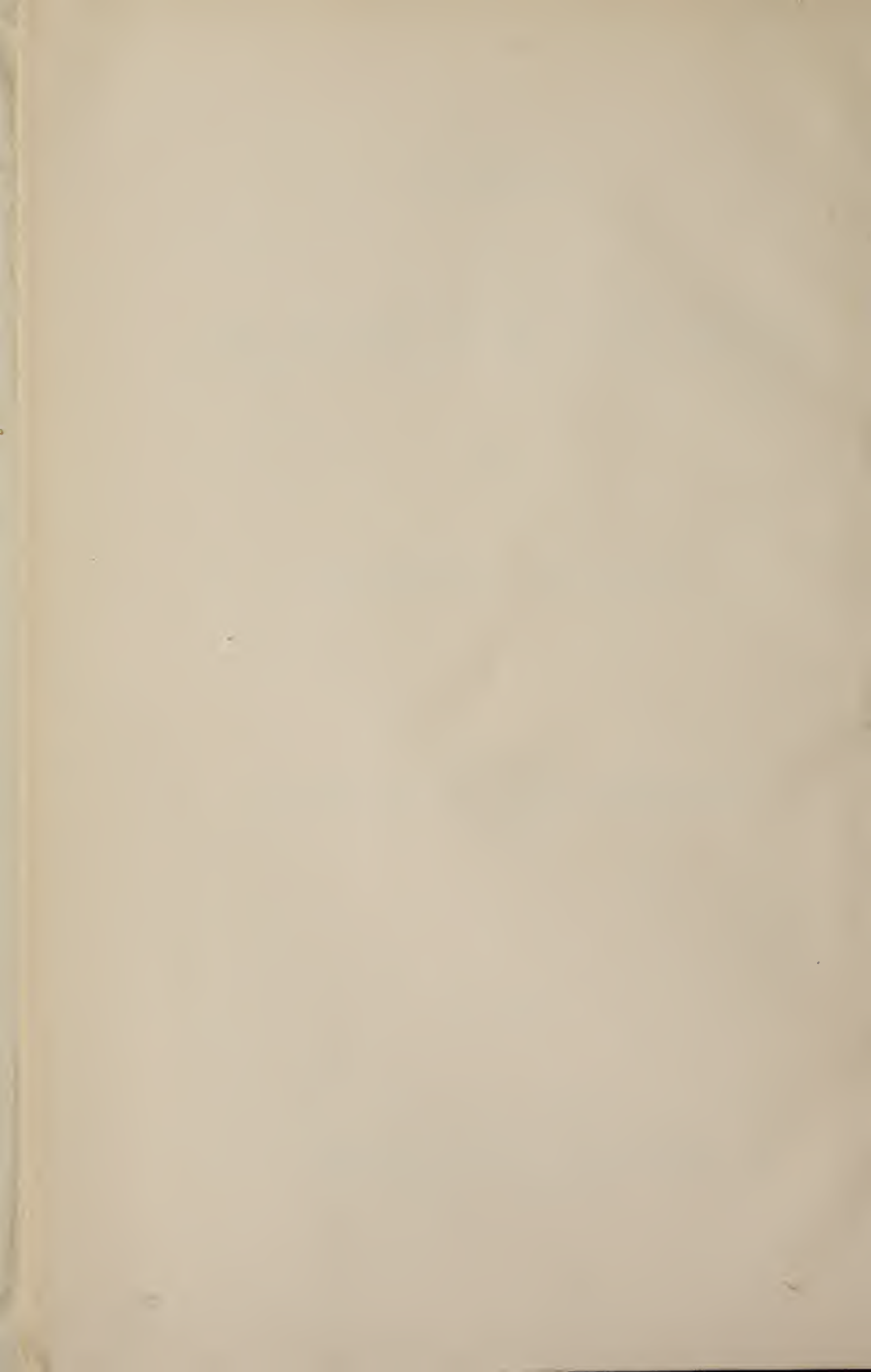
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OHIO
STATE JOURNAL
OF
DENTAL SCIENCE.

EDITED BY
GEORGE WATT, M. D., D. D. S.
XENIA, OHIO.

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No. 1

Contributions.

"A word fitly spoken is like apples of gold."—SOLOMON.

A NEW METHOD OF FILLING TEETH.

BY F. H. REHWINKEL, M. D., D.D.S., CHILICOTHE, O.

IN the July number of the *Correspondenz Blatt fuer Zahnärzte*, appeared an exceedingly interesting article on a new method of filling teeth: recently introduced by Herr Zahnarzt W. Herbst, of Bremen, and fully explained and demonstrated by him in a clinic, before the "Frankfurt Dental Society, at Frankfurt am Main; May 26th and 27th, 1883."

Herr Herbst's method is attracting considerable attention on the other side of the Atlantic; and those who had learned of it from him upon a former occasion, and had familiarized themselves with the details of its manipulation, and had by its use succeeded in producing highly satisfactory results, speak in terms of genuine appreciation of its advantages over the methods hitherto known to the profession. Theoretically, it is very fascinating, suggesting to every experienced and observing operator the possible doing

away with those imperfections arising from the use of cohesive gold and the mallet, which time has shown to be serious defects in the average gold filling.

As the subject is one of interest to all members of the profession, it is possible that the remarks and explanations of Herr Herbst, given in substance, together with a description of the instruments as used in his clinic at Frankfurt, may not be unacceptable to the readers of the JOURNAL.

By way of a more comprehensive introductory to the new method, their indulgence is asked for a few retrospective remarks in reference to the *old* Method, and the present status of the question "Cohesive versus Noncohesive Gold."

Without doubt, the introduction of cohesive gold and the mallet opened an extended field of usefulness to the dental operator. Thousands of teeth which, previous to this period could not possibly have been filled and saved with gold, could now not only be filled, but the original shape of the tooth could also be completely restored; indeed, whole crowns were often built up by means of cohesive gold. And as a natural consequence, within one decade after its introduction the operative branch of dentistry underwent a complete change. The old method of filling teeth with noncohesive gold was gradually laid aside, and every operator who desired to keep pace with the times, turned his attention to the acquirement of that peculiar manipulative ability requisite in the use of cohesive gold.

In looking over the proceedings of the dental societies twenty years ago, we see that among the topics under discussion, the subject of the "Use of cohesive gold and the mallet," found not only intensely interested listeners, but also many zealous upholders. The final result is well known. With the exception of a few independent thinkers, who occasionally advocated the feasibility of the old method of filling suitable cavities with noncohesive gold, and who were summarily disposed of as "old fogies," cohesive gold was universally used, and to such an extent, that it soon amounted to an actual abuse of the material. The primary results of filling with cohesive gold were so promising and beautiful, that all former methods were entirely abandoned by the younger members of the profession, and the necessity of that discrimination always so essential in the choice of materials, was wholly lost sight of. Temporary teeth were filled with cohesive gold, and the

mallet was used as vigorously, as can only with safety be done in well matured teeth. Teeth of soft structure, with central cavities on the grinding surface, where noncohesive gold could have been used with greater facility, underwent the painful process of having a cohesive filling hammered into them. It was *the* method. It was *the* style. This injudicious use of cohesive gold continued for some years, and has not even now been entirely dispensed with. It was noticed, however, that fillings made of this material frequently failed at the margins, especially at the cervical borders. This was attributed to faulty manipulation on the part of the operator. But after a time, when the work of the most skillful and well known operators shared the same fate, it became evident that some other explanation must be sought for the cause of these failures.

Among other reasons assigned, was that of the influence of electric action, the less resisting force of dentine and the greater resisting force of gold, and the consequent destruction of dentine. And to the acceptance of this theory as a probable explanation for the existing evil, was largely due the cause of the "New Departure." With the advocacy of plastic, as a substitute for gold fillings by gentlemen of capacity and reputation, lively discussions were reopened and many hitherto silent observers obtained a ready hearing in oral discussions, and their written articles found attentive readers. A reaction began to take place, unfortunately at the time, too much in favor of amalgam. But during the interval since that period, the profession has been advancing step by step toward a more perfect understanding in the use, and choice of materials for filling teeth, and it is now a well recognized fact, that the plan of filling exclusively with cohesive gold, is open to serious objections, and efforts are being made simultaneously in different parts of the world to either devise a modification of the present method, or to discover some new one, depending upon new principles of introduction and condensation of the gold. From time to time, various suggestions have been made for the prevention of the frequent failures of gold fillings at the cervical borders. Some operators advising a foundation of amalgam, others recommending tin for that purpose. Many have abandoned the retaining pits, and start a filling with noncohesive gold, with only slight undercuts at the borders. These different methods of procedure all indicate that the tendency of the present time is

toward a more eclectic system of operating. Our professional brethren across the sea, are laboring under the same difficulties. Dr. A. A. Blount, of Geneva, Switzerland, formerly of Springfield, Ohio, has, for several years, been pursuing the plan of heavily lining the margins of cavities with soft or noncohesive gold. Specimens of his work have been brought over to this country by Dr. J. Taft. It seems to me that the principle underlying his mode of operating is the correct one. Although my entrance into the dental profession was contemporaneous with the introduction of sponge gold and cohesive foil, my training had been on tin foil and noncohesive gold. The adoption of cohesive foil was a gradual process with me. For several years I used noncohesive gold for lining the whole of the cavity, opening the center, and by properly applied lateral pressure, sending the soft and yielding gold in all directions; afterwards filling the opening in the center with sponge gold or cohesive foil. Occasionally I see some of these fillings, put in between twenty and thirty years ago, and in comparing them with fillings of more recent date, made entirely of cohesive gold, with the usual retaining pits for anchorage, I often wish I had adhered to that practice. I refer to those cavities and that class of teeth in which the defects observed in the average gold fillings are most frequent,—those between bicusps, molars and to some extent between incisors—cases which have been sources of mortification and disappointment to many operators.

At the last meeting of our State Society, Mr. Ransom handed me several numbers of German dental journals. In one of these mention is made of the Herbst method. While explaining H's manner of operating to Drs. Taft and C. R. Butler and discussing its merits, the former gentleman remarked that Dr. Porter, of Bay City, Michigan, more than a year ago had described to him a similar mode of filling teeth. Possibly this may be the same method as that set forth in the German journal, but Herr Herbst can justly claim that he was the first to make it generally known, to give it to the profession, and to demonstrate it in a clinic before a dental society.

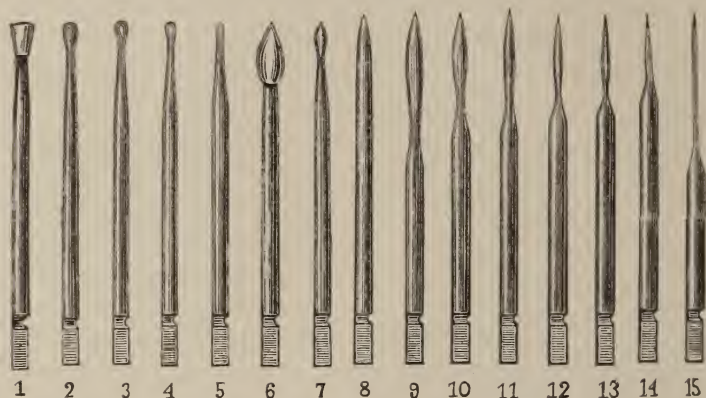
Dr. G. Von Langsdorff, a graduate of the Ohio College of Dental Surgery in 1861, formerly a private pupil of Dr. W. H. Atkinson, and now a resident of Freiburg, Baden; a gentleman thoroughly familiar with the use of cohesive gold and the mallet,

addressed a letter to Herr Herbst, and requested that it should be read before the Frankfurt society.

“Herewith you will receive the two teeth filled with gold. I broke open the crowns of both to examine the adaptation of the gold to the walls and margins of the cavities. It was my intention to offer some remarks to the society complimentary to yourself. I desired to call the special attention of the members, both to the beauty of the fillings and to their density, which is equally good at the cervical borders, and on the masticating surface. I also particularly wished to point out that a strong magnifier showed the gold to be remarkably well condensed, and the pressure against the walls of the tooth to be strikingly uniform. It is very apparent that this method of condensing gold is preferable to that in which the gold is hammered into the cavity with the mallet. You open through the discovery of your method another era for operative dentistry. This justly entitles you to honor, and will bring you undivided renown. Your generous liberality in giving your original idea to the profession, and your willingness to show and teach others your method, will be gratefully acknowledged. I would ask you to present my views and estimate of the value of your plan of operating to the Frankfurt society, with my sincere regrets for not being able to speak personally before the society on this important subject.”

Herr Herbst, after making a few general remarks, and referring to the many testimonials of approval which his method has called forth from all parts of Germany and even from America, begins his explanation with the following words: “We will now thoroughly test the practicability of my method. I will first fill a central, then two approximal cavities, and then proceed to make two contour fillings. These fillings I intend to make in teeth out of the mouth. The crowns are afterwards to be broken open in order that the interior condition of the fillings may be examined; and their density, and the adaptation of the gold to the walls of the cavities be judged of by you. The instrument used in this method have already been shown to many of you upon a former occasion. They can now be procured at the dental depots. The set I have in use at present was sent to me by Messrs. C. Ash & Sons. No. 5 is the principal instrument, several of graduated sizes being requisite. They can easily be prepared by any one. Take a broken bur or drill, put it into the hand-piece of the

engine, and without drawing the temper, grind it upon a dry oil or Arkansas stone to a flat blunt point, the cone at the point should be very flat (similar in shape but even flatter than the



twist drills found in the market). I have learned to appreciate more thoroughly the full value of this instrument since last year's meeting here. Nos. 1, 2, 3 and 4 are used in the commencement of large fillings to fix the first layer of gold, but principally for burnishing the surface.

Dr. Nicolai, of Stuttgart, who, as is well known, is a zealous convert to my method, also uses these four instruments for amalgam fillings.

The instruments from Nos. 7 to 15 are more important, particularly No. 15. This is a sewing-needle, cemented into any ordinary shaft or shank, fitting the hand-piece of the burring engine. The instruments Nos. 7 to 15 are used for approximal fillings. Nos. 6, 7 and 8 occasionally also for other fillings. It is difficult to lay down fixed rules for the use of instruments in any method of filling teeth, but I will endeavor to demonstrate as clearly as possible the way in which the instruments here referred to are to be handled.

Herr Herbst now describes the make and kind of gold he uses. This corresponds to our well known soft cylinders. Ordinarily he does not anneal it, because as it is manufactured in his place of residence, he can at any time procure a fresh supply. He advises, however, that when the gold has been kept on hand for any length of time, it should be heated upon a piece of mica—simply heated, but not brought to a red heat. Then resuming:

"I will make this rather large central filling. I take two, three, four or more gold cylinders of suitable size, and press these in and against each other upon the bottom of the cavity, then with Nos. 2, 3 or 4 with slow rotations of the engine, make the first attachment of the gold. If the gold does not become firmly placed, I add more, and with an ordinary hand plugger press it into place and renew the rotations as before. In the further building up process, the instrument No. 5, the point of which is not polished but ground or stoned, is almost entirely relied upon. The surface of the filling looks dense and has a burnished polish. You will see now that No. 5 causes the gold to shrink considerably and condenses it more thoroughly; I use but ordinary pressure. In such large fillings, as you see, the point of the instrument must be correspondingly large. If too fine, a number of pits are formed in the filling. The pressure of the instrument upon the gold must be intermittent, because if too long continued the rapid friction develops too much heat, and this transmitted to the pulp, causes pain and irritation. The burnished surface of the filling has now changed to a dull dead color, and the gold has become cohesive. I again take three, four, five or more cylinders as before, and condense with No. 5. You perceive that the building up process progresses rapidly. When the cavity is quite full, we try the filling with a sharp pointed plugger or excavator, particularly at the margins, to convince ourselves of its uniform density and perfect condition; If everything is right, the whole surface of the filling is gone over with No. 1, 4 or 7."

"We now split the crown to ascertain if the gold has conformed to all the little irregularities of the interior surface of the tooth, and if the adaptation is as uniform as can be wished. Let us also examine the filling itself. You see the mass of gold is solid, and that it can not be broken up."

Herr Herbst next proceeds to fill two approximal cavities between central incisors. The teeth being imbedded in plaster of Paris. He does not use retaining pits, merely slightly undercuts, so that the cavity is a trifle larger in the interior than at the orifice. He calls attention to the importance of being especially careful that the filling should be made perfect at the cervico-lingual walls, from the start, as it is hard to make corrections later on, owing to the difficulty of access to that part of the tooth. He claims that he needs very little space; never uses rubber for sepa-

rating, at the utmost merely a little cotton; but generally wedges slightly with wooden wedges at the neck of the tooth. If the lingual walls of the cavity are broken down, he makes his fillings from this point. He uses for these fillings gold cylinders Nos. 2 and 3, but for very small cavities No. 4.* In making two approximal fillings, he fills both cavities simultaneously; that is, he fills one to a certain stage, and then the other to the same point, alternately adding the gold to each cavity. Throughout the whole operation he uses No. 5 for condensing the gold, and builds the two fillings out until they touch each other, and look like one. He now uses No. 15, inserting the point of the instrument between the fillings near the cervical margins, and the rotating needle introduced with moderate but steady pressure cuts its way through between the fillings. This same process is next continued at the margin near the cutting edge of the tooth; then in the center and at any point where the gold may yet be in contact. Should any little ridges be left, they are smoothed down with a fine separating file. If it is desirable to condense the surfaces of the gold still more, Nos. 12 to 14 are used for this purpose. The fillings are then finished in the usual manner. The crowns of these teeth are also split open, and condition of the fillings thoroughly examined and pronounced up to expectation.

Herr Herbst next demonstrates his method of making contour fillings. He tells his hearers that he has attempted fillings of this kind only within the last year, and had not done so at all, until a brother of his returning from the United States informed him that his method was imperfect, and would never gain the attention and respect of American operators unless he could by its use produce perfect contour fillings. Dr. Nicolai, of Stuttgart, since he became acquainted with this method, has succeeded in making very satisfactory fillings of this kind. Herr Herbst selected two teeth with approximal compound cavities (he does not mention whether bicuspid or molars) imbedded in plaster of Paris. In these fillings he always uses matrices, the loop matrice if practical, or makes them out of the smooth end of a separating file, or of pieces of clock springs. These he fastens in the usual manner with wooden wedges. He allows the matrice to come

* It seems that Mr. Walrab, the manufacturer of the gold spoken of, numbers his cylinders inversely from the way in which ours are numbered in this country. Therefore, his No. 4 must correspond to No. $\frac{1}{2}$ of our manufacturers.—TRANSLATOR.

only within $\frac{1}{3}$ or $\frac{1}{4}$ of the cutting edge of the tooth, in order to leave a sufficiently large opening for the introduction of the gold.

For these fillings he uses instrument No. 5 almost exclusively. The larger sized instruments at first, but on nearing the borders, the smaller ones. He proceeds to fill one of the teeth precisely as if it had a central cavity, being particularly careful to condense the gold well against the matrice and in the angle of the cervical edge. He thinks it is well to have the gold moderately heated for that part of the filling which is next the approximal wall and grinding surface. In places which can not be readily reached with the instrument, the gold is condensed with an ordinary plugger and hand pressure. After removing the matrice, the approximal wall must be carefully examined, and any imperfection or unevenness must be remedied before the rubber dam is removed. After condensing the gold, trimming and smoothing down the overlapping portions at the cervical border, he fills the cavity in the opposite tooth in the same manner as the first one. He states that he can make two such fillings in about one hour.

Wishing to show that his method has its advantages over other and older methods for the patient as well as the operator, he next put in two large compound approximal gold fillings for his brother. He used the rubber dam, clamp and matrices, and made them exactly as he had made the preceding ones,—in the teeth set in plaster of Paris.

Herr Herbst closes his clinical talk and demonstrations with the request, that the members of the society will examine and criticise his work, unhesitatingly pointing out defects, if any have been discovered.

SALIVA—QUALITATIVE ANALYSIS.

BY E. J. LILLY, M. D., D.D.S.

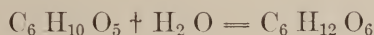
GENTLEMEN:—The substance we shall attempt to investigate, this evening, is saliva. With its appearance you are all familiar, and with the fact, also, that the normal reaction is neutral or alkaline. The specific gravity varies from 1,002 to 1,009; and the amount secreted daily by the several glands is from three to six pounds. Chewing and the presence of inviting food in the mouth

excite the flow fast enough to meet all wants, even though the food be dry, if it is slowly taken. Indeed, there is no necessity for drinks at meals, simply to facilitate the act of deglutition, the saliva being nature's moisture. Moreover, it is important not merely for moistening, but for the production of chemical changes needed in the transformation of food into blood, and then into the solid parts of the body, giving strength, growth, vigor and health. Just to the extent that we soak our food or bolt it, thus depriving it of the necessary combination with saliva, we impair digestion, and manufacture dyspepsia, liver complaints, and bowel derangements. It is also true, that in proportion as we relieve these glands of labor by the use of moist foods, or by haste, we so far discourage their efforts, diminishing the amount of the flow, and consequently its beneficial effect—since the organs of the body, like lazy boys, do only what circumstances compel them to perform,—inactivity always tending toward weakness. And though the food may be made fine and swallowed, to the degree in which it is deprived of this solvent will it lack one of the aids to digestion, and to the same extent will the succeeding processes be impaired and rendered imperfect,—not to mention the deleterious effects upon the teeth themselves, from disuse.

In our investigation, this evening, we shall take the mixed saliva as it comes from all the glands of the mouth—parotid, submaxillary, sublingual, and the mucous glands in general. It is scarcely in place to give the anatomy or histology of these glands, except so far as to say, that the salivary are conglomerate glands, consisting of numerous lobes, which are made up of smaller lobules, connected together by dense areolar tissue, vessels, and ducts. Each lobule consists of numerous closed vesicles, which open into a common duct; the wall of each vesicle is formed of a delicate basement membrane, lined by epithelium, and covered on its outer surface with a dense capillary network. In the submaxillary and sublingual glands, the lobes are larger and more loosely united than in the parotid. Here are some stained and mounted sections of these glands, showing details of structure, which you may view under the microscope. The ducts which convey the fluid from the glands to the mouth open on the inside of the cheek, near the second upper molar, and on either side of the frænum linguae. You can see these openings by raising the tongue or stretching the cheek.

Saliva is found in nearly all animals. Its universal office is to lubricate the food, and so help the bolus to glide easily along the pharynx and gullet. This universal variety of saliva, which is a viscid, glairy mucus, is the only kind in animals that do not chew their food—for example, birds, reptiles and fishes. But in animals that do grind the food there occurs another kind, a limpid fluid, which aids mastication by softening the mouthful, making it easier to break up. In most mammals this has also a chemical power, changing starch to sugar. As the latter substance is heat-producing, this power is lacking in the saliva of cold-blooded vertebrates: in birds it is replaced by the abundant pancreatic juice.

The chemical decompositions forever occurring in the human body are included in two processes, viz: those of hydration, and those of oxidation. That is to say, they are decompositions depending upon the assimilation by substances of the elements of water, or upon the action of oxygen. For instance, the starch of food is, in the mouth, transformed into sugar by the assumption of a molecule of water, an assumption directly caused by the (so-called) catalytic power of ptyalin. To illustrate: here is a test-tube about half full of saliva, into which I will pour some boiled starch-water, at the same time keeping the solution as near the temperature of the body as possible. In a very short time the starch, acted upon by the peculiar zymase contained in the saliva, will be converted into sugar by combining with a molecule of water, thus:



If the saliva, before being mixed with the starch solution, is heated to 60° C. (140° F.) or higher, it loses permanently its saccharifying power. The amylolytic action is arrested by freezing or by the addition of strong acid, but is regained by raising the temperature and by neutralizing the acid. Caustic potash and soda destroy the action of saliva on starch, and in this case is not restored by neutralization. The carbonates of these alkalies arrest the diastatic power, which is recovered upon carefully adding an acid till the neutral point is reached.

By this time, doubtless, the change has progressed far enough for us to detect the sugar formed from the starch. It is easily ascertainable if sugar be present by using a re-agent known as

Fehling's solution,* which is made up of sodic hydrate, Rochelle salt, and copper sulphate, mixed in certain proportions and dissolved in water. When this solution is added to saliva in which sugar is absent, the copper is not reduced; but if sugar be present, it will cause a precipitate of yellowish red suboxide of copper (Cu_2O), which you can all see very plainly has occurred in the test-tube.

Ptyalin may be isolated in a measure by precipitating fresh saliva by means of calcium phosphate *in situ*, that is, by the addition of phosphoric acid and lime water. In this way the ferment is carried down mechanically with the precipitate of calcium phosphate, and may afterwards be extracted with water, and precipitated by alcohol. By continually repeating the solution with water and reprecipitation by alcohol, ptyalin may be obtained in a snow-white form.

Besides ptyalin, mixed saliva contains mucine, a small quantity of fat or fatty acids, potassic and sodic sulphocyaide, calcium and alkaline carbonates, chlorides, phosphates, sulphates, etc. If a drop of saliva be placed under the microscope, air bubbles and pavement epithelium will be seen, and, if the mouth has not been kept clean, remains of food, as fibres of meat and vegetable tissue, granules of starch, fat, globules of milk, and sometimes cryptogamic sporules and vibrios. But we will have time to notice at length only a few of these substances.

Mucine may be separated very easily from saliva by adding acetic acid and stirring with a glass rod. The mucine is seen separating in white, stringy flakes, very viscid and tenacious, having been coagulated by the acid. In fact, the tenacity of saliva is due to mucine.

Chlorides are discovered by adding to some saliva a drop or two of a solution of argentic nitrate, when a dense white precipitate of argentic chloride, insoluble in acids, but soluble in ammonium hydrate, will fall, indicating the presence of hydrochloric acid:



On adding to some saliva two or three drops of a solution of

* Dissolve 7 grms. crystallized sulphate of copper in 40 C. C. distilled water. Dissolve caustic soda in 100 C. C. of water till the sp. gr. is 1.14; then dissolve, in this solution of caustic soda, 35 grms. Rochelle salt. Mix the two solutions, which will give a deep blue color. Dilute to 200 C. C.; when 10 C. C. will just be discolored by .05 grms. grape sugar.

barium chloride, first acidifying with hydric chloride, a dense insoluble precipitate of barium sulphate will appear, if sulphates are present :



Phosphates are shown by adding first a little sodic acetate, then uranic acetate: a yellowish-white precipitate, insoluble in acetic, but soluble in hydrochloric acid, shows that phosphates are present, as indicated by the precipitate of phosphate of uranium in the tube :



The presence of sulphocyanogen in the saliva is peculiar to man, and its function remains unexplained, although one author has suggested that its presence resists the formation of fungi between the teeth. A tooth-brush and tooth-pick will do this as well, if not better. Sulphocyanides are recognized by the blood-red color which a drop of dilute ferric chloride imparts to the liquid, due to the formation of sulphocyanide of iron, as the equation shows :



In most instances the red color will be so faint as to escape detection unless the saliva be first concentrated. But the human salivary machine from whom the saliva we have used to-night has been obtained has, for the past hour, been smoking very strong cigars, which accounts for the deep coloration we were able to obtain with the fresh unfiltered saliva. If the reaction fails when applied in this way, it is no proof that sulphocyanogen is wholly absent; while on the other hand, if the color is developed by direct application of the iron solution, it must be remembered that this alone is not positive evidence of the presence of this substance, for ferric chloride strikes the same color with meconic acid, which may be present in the patient's mouth from opium. Consequently a confirmatory test is necessary, which may be made by adding to the colored solution some mercuric chloride or corrosive sublimate (Hg Cl_2), when, if the color is due to a sulphocyanide, the solution will become colorless, as you see the contents of this beaker do. If, on the contrary, the coloration is produced by meconic acid, a solution of which is in this beaker, the mercuric salt will effect no change whatever, the solution remaining colored as before.

Sometimes, on rising in the morning, one detects a bitter taste in the mouth, due to the presence of bile; and on examining the back part of the tongue, a yellow or reddish-brown deposit will be found upon it. No yellowness of the skin or conjunctivæ is apparent, and an examination of the urine fails to reveal the presence of bile; but if an ounce of saliva be evaporated on the water-bath, a yellow or reddish-brown residue is left, soluble in chloroform, and gives the reaction of bile pigment. A smaller quantity of bile can be detected in the saliva than in the urine, because the normal coloring matter in the latter interferes with the test. The physician who fails to make use of this means of diagnosis will often fail to recognize hepatic derangements.

To ascertain if bile-acids are present, Pettenkoffer's test is used. To a portion of the suspected saliva, in a test-tube add a drop or two of a solution of cane sugar, and then sulphuric acid drop by drop, keeping the temperature to about 70°C . by placing the tube in a tumbler of cool water. If a precipitate appears, the acid must be added till it is dissolved. The solution now takes a cherry-red color, becoming purple on standing. The solution usually has a characteristic purple foam; but if no foam exists, as sometimes happens, it will appear on the addition of a few drops of carbonate of soda.

Bile-pigment is detected in the following way: Pour into a test-tube some fuming nitric acid, or, if that is not at hand, mix some strong sulphuric and nitric acids, and let the mixture stand in the sunlight till red fumes appear. Then carefully add, without agitating, the suspected saliva; allow to stand and observe it from time to time. Soon colored rings appear, being, from above downward, green, blue, violet, red and yellow. Gmelin's test is to spread some concentrated saliva on the bottom of a white dish, and add a few drops of fuming nitric acid, when a green, blue, red and yellow coloration will extend outward in rings, due to the action of the acid on the coloring matter of the bile.

Mercury is sometimes found in saliva, brought about by the administration of too much mercurous chloride, or calomel, (Hg_2Cl_2), the salt being, under certain conditions, soluble in solutions of alkaline chlorides, the solution being due to the formation of mercuric chloride. In the presence of certain organic substances the resolution into mercuric chloride and mercury takes place at 38° to 40°C (100°F). Allow me to say right here, that salivation

is becoming alarmingly frequent. Whether the disastrous result follows from carelessness of the physician, from uncleanness of the mouth of the patient, or from some diathesis or idiosyncrasy not discoverable before hand, I will leave others to determine. But that cases frequently occur, no dentist, who examines many mouths, will deny. Soreness of the teeth and gums is the first effect of the administration of hydrargyrum, followed by salivation. Extensive ulceration, even necrosis of the maxilla has occurred. Upon the nervous system mercury sometimes causes a peculiar train of paralytic symptoms. Chronic exposure gives rise to the so-called mercurial cachexia.

When mercury is present in the saliva from any cause, it can be detected by first acidulating with hydric chloride, then placing into it a clean, bright strip of copper, when metallic mercury will be deposited upon the copper:



and when gently rubbed with the finger it presents the tin-white lustre of the metal, the coating being driven off by heat. I may mention, in passing, that during salivation from mercury, sulphocyanogen disappears from the saliva.

Many other medicinal substances may be detected in the saliva, but we will notice only one or two, as the time at our disposal is growing short. For example, iodine and bromine, indicating iodides and bromides, are found by first displacing the iodine and bromine by means of chlorine water, which is made by boiling potassium chlorate with dilute hydrochloric acid:



and then, by adding two or three drops of carbon disulphide, the liberated iodine is carried to the bottom of the tube, forming a beautiful pink globule; the bromine forms with the supernatant liquid, a fine brown coloration. If an artist desires to obtain a shade of pink that would captivate the eye, he should take such a globule as this and try to imitate it.

Tyrosine and leucine have sometimes been found in the saliva, and especially in that of hysterical persons. The former occurs in needle-shaped crystals, which are not soluble in acetic acid, and in this way are distinguished from phosphate of lime. Leucine appears in globules resembling oil, but insoluble in ether. It is, chemically considered, an amidated fatty acid, obtainable

from albuminous substances, and when thus obtained is identical in composition with leucine prepared by artificial synthesis. Tyrosine occurs in all situations where leucine is found, and is an analogous compound.

Albumen is an organic constituent of saliva, and it will be found that if the saliva be strongly acidified with hydric nitrate it will become more turbid. If it then be boiled, the coagulum takes a yellowish color, and is not dissipated, thus showing the presence of albumen. A confirmatory test may be made by adding to a second portion a mixture of acetic acid and potassium ferrocyanide, when a white precipitate is produced. Both of which tests we were successful in obtaining.

In cooking eggs, the white part of which is nearly pure albumen, they should not be boiled, or heated to 100° C. as is usually done, for albumen fully coagulates at 72°, and when prepared at that temperature they are tender, delicate, and jelly-like, having every appearance to sight, touch and taste of being easily digestible. If, however, they are heated to the boiling point and kept at that temperature a few moments, they will dry, shrink and become horny. If the heat is carried a little higher, they become converted into a substance which is so hard and tough that its digestion is nearly impossible. A perfectly cooked egg, therefore, should never be boiled.

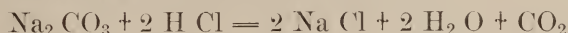
But to return from the digression. One other substance we shall speak of, namely, the so-called tartar, or salivary calculus. Calcium exists in combination in saliva other than as carbonate, and the calculus is made up partly of calcium phosphate; but we will deal chiefly with the carbonate. The mode of formation of tartar upon the teeth—and it is found in greater or less degree upon the majority of teeth we examine—is this: the carbonates, dissolved in an excess of carbon dioxide, are thus held in solution in the saliva; but when it is poured into the mouth this excess of gas escapes, leaving the insoluble carbonate of lime to be deposited upon the teeth. The equation shows the change:—



The same reaction occurs when hard water is boiled, the heat driving off the excess of carbonic acid gas, leaving the carbonate to be deposited as a crust on the inside of the vessel. That the lime is held in solution as bicarbonate is shown by allowing

the saliva to stand exposed in the air, when a crust of calcium carbonate forms over the surface. The whole reaction may be very nicely shown by this beaker of lime water.

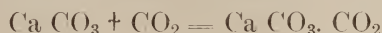
Making some carbonic acid gas with sodium carbonate and hydrochloric acid, as shown by this reaction :—



and allowing it to pass into the lime water, results immediately in the formation of a precipitate of carbonate of lime :—



but by running the stream of gas a few minutes longer we again obtain a clear solution of calcium bicarbonate :—



and further than this, by boiling the solution, we once more deprive the salt of its excess of carbonic acid, and if there happened to be something solid in the beaker—a tooth, for instance—we would get a deposit of “tartar” upon it. The same reaction occurs in the mouth, but of course much slower. Here is a slide on which is a small fragment of tartar taken from a tooth and rubbed up with a drop of water; and after you have seen the numbers of bacteria and vibrios it contains, each of you will, perhaps, have a great desire to thoroughly brush and scour your teeth; and, what is of more importance, keep doing so, two or three times a day at least.

The physiological and pathological effects which these different substances have we will consider at a future time. At present we are concerned only with the fact that they are found in the saliva, differing in proportions in different people.

One other remark and we will proceed with our analysis, each one of course, furnishing his own saliva. In this and other talks I have used that vague and indefinite term “catalysis,” not because I thought the word explained the phenomenon to which it referred, but for the sake of simplicity and brevity. I do not believe the conversion of starch into sugar is brought about by “catalytic action,” nor does it account for the behaviour of arsenic upon tissue, or the more rapid evolution of oxygen when black oxide of manganese is mixed with potassium chlorate,—and many more such changes that are alleged to be brought about by the mere presence of a substance. Such an idea is untenable in the present

state of knowledge regarding matter and force. It may be asserted as an axiom that no substance can produce any result or change in other substances without itself suffering change in some respect, either physical or chemical. At another time I will try to show that all the substances used in reactions of this nature play a part in the process, and do not merely facilitate the reaction by their unchanged presence.

TASTE—IN ITS RELATION TO TEETH AND GLASS EYES.

BY PROF. C. M. WRIGHT, D.D.S., CINCINNATI.

EMERSON, in one of his Essays, remarks: "That what nature at one time provides for use, she afterwards turns to ornaments;" and Herbert Spencer has pointed out, in his *Studies in Evolution*, and the applicability of the Law of Progress, "That the appliances of one era serve as embellishments to the next." "Ruined Castles," he says, "afford an obvious instance of this metamorphosis of the useful into the beautiful. To feudal barons and their retainers, security was the chief, if not the only end sought, in choosing the sites and styles of their strongholds." Probably those old robbers and warriors aimed as little at the picturesque as do the builders of our modern rows of cheap brick houses; and yet, even the broken and rough walls, and fragments of towers, perched on the tops of such rugged crags, and in such almost inaccessible positions, are now regarded as magnificently picturesque ornaments of landscape; and our beautiful Ohio can never vie with the Rhine, because she has not these ruins of a past age. Antiquated articles, such as suits of armor, two-handed swords, battered battle shields, broken jugs, ewers, vases, evidently made *for use* by a former age of artisans, now ornament our drawing-rooms, and occasion ecstasies in the breasts of the artist and the art critic of to-day. This may be in accordance with the principle of Evolution; and history may confirm this law of Progress. The American Dentist even may find excuse in it too, for his practices. He may flatter himself that future Ages will regard his *useful* work of to-day in *Keramics* and in *Gold Foil*, as ornamental, and as belonging to the beautiful; but there are reasons

why it may not be so. The mutilations of the human form by savage and semi-civilized races, and the representations of these mutilations, have never been regarded as beautiful by more civilized nations of any age. Savages, like the Flathead Indians, and others who have distorted the shape of the cranium; and semi-civilized races like the Chinese, who have distorted the shape of the human feet, have not furnished ornamental heads and feet for the admiration of later civilized nations. They have simply afforded illustrations of a low form of taste, from which, perhaps, a truer taste has been evolved, as nations have progressed in refinement and cultivation. The mutilations have been looked upon with horror and disgust, as taste in the true and beautiful advances. I feel quite sure that the display that American Dentists are making in the mouths of their patients—the corners, and halves, and quarter sections of all anterior teeth made in gold—is not in accordance with taste. The glaring conspicuous exposition of previous decay and neglect on the part of the patient, and the *late attention* on the part of the dentist, is not in good taste. Disease, neglect and surgical work should be concealed, and not publicly exposed. The glaring gold incisor—that distorts the *natural* expression of the mouth—is the sign of inferior “culture,” the remnant of the savage order of taste, which, like the rudimentary muscle, might furnish a fact, from which can be deduced the inference of an uncultivated mental condition in times past. I may be wrong, but observation seems to point out the fact, that in larger cities, the demand for this sort of disfiguration comes principally from the uncultivated classes of society, i. e. from the *nuvean Riche*, and from those who desire to ornament themselves regardless of taste.

The careful observer will find, I think, in his rambles about a large city, that women who wear cheap jewelry, imitation diamonds, shabby gloves and mangy seal skins, present the largest proportion of gold in their front teeth. A still closer examination with a dental mirror would bring to light loose inferior teeth from deposits of tartar and broken and neglected back teeth. Inquiry would develop the fact that this gold work can now be had at “Steam Dental Establishments,” and at *prices* to suit any pocket. Many dentists now, who pride themselves on their “Contour work,” calculate cost of material, and make estimates on the time employed, as do plumbers and house painters. Com-

petition is an element of the work. Profit and loss are vital questions. To *supply a demand*, is the business maxim of the dentist; and the demand for this work has been *created*, by the dentist, by the inventor of fine instruments, rubber dams, and engines, and by the manufacturer of dental appliances. It is a demand created by skillful mechanics without taste. What was considered as a wonderful "restoration" requiring rare skill a quarter of a century ago, is now a matter of daily and hourly work on the part of nearly every ordinary dentist. It is admitted that the contouring of an incisor in a creditable manner, does not require a high order of skill, and is not a question of art at all, but a question simply of mechanical training, like making boxes or laying bricks. If *taste* could be educated, and appreciated by the dentist and by the public, the same skill, now in the hands of the "profession," would be applied in *concealing* the evidences of disease and of dental art.

We cannot reach the people, of course, through dental journals. The dental journal affects the public only by a tardy reflex action. The dentist must appreciate the truth of these statements, and the enormity of the offense first, or be content to wait for a general awakening of Taste on the part of the people. But the *business* flourishes.

Students of a few months, learn the trade. Many become expert. "Dentistry" can be carried on like "Barbering." A business man can fit up an "office," place three, six, or ten chairs in convenient positions, and hire good "fillers," to "*run* these chairs," at moderate wages; and just as journeymen barbers take pride in their skill at "shingling" a gentleman's hair, so do the journeymen dentists take pride in "contouring" a gentleman's tooth. Other journeymen are called in to look at an "operation," just as I have seen journeymen in a barber's shop called up to look at a "cut." Both call their work *artistic*. Both have done well, according to the passing fashion of the day; and utterly regardless of any principle of true *art* in the higher sense. This plain talk generally provokes the anger of high-toned young men in the profession of dentistry. They point with pride to the *Science of Dentistry*.—So do you and I; and it is on account of the deep regard that we must have for the *Science*, that I ask you to weep with me over the degradation of the *Art*, that is so revolting. We must conceal our Art. We must copy nature.

We must lay aside our foolish reverence for the *Gold worker*, (unless he can so employ his skill in the manipulation of this fine metal, endowed with such valuable qualities for the dentist, as to strengthen and restore and yet be hidden from every passing gaze). We must begin to appreciate the true work of our profession, which is the restoring to a physiological condition—not a tooth simply—but the organ of mastication that has gotten into a pathological condition; *and* the necessity of making these surgical restorations without leaving ghastly scars of gold. If we will meditate seriously upon this question, we shall see clearly how far away from the true and the beautiful, and how much nearer to the absurd and repulsive we have gotten—not only in the Operative, but in the Prosthetic Departments, both of which, to-day, are the eminently mechanical. We are, however, not alone in our degradation. Permit me to offer a letter recently received from a traveler who is making the grand tour of the *New Atlantis* which, as you all know, has been recently attracting so much Scientific interest:

“ We arrived, after a rather perilous sea voyage, in this beautiful New Atlantis—an island, by the way, that may well vie with a continent on account of its size and number of inhabitants. I shall tell you about the laws and customs, social and political in another letter. First of all, however, I must tell you about the most remarkable feature—the first noticed by a stranger, and one which among so enlightened and cultivated and ambitious a people, is truly unaccountable to me. Everywhere, as you promenade the boulevards of their cities, and whenever and wherever you meet the better classes of the people, you are struck by the most astonishing appearance of the eyes of so many of the inhabitants. Nearly every second man, woman and child that you meet, has at least one false eye; and no matter how dark the complexion, or eyebrows, or hair; or how dark hazel, or grey, or brown the natural eye may be, the *false* one is *always* of a clear blue, with large fine pupil. The false eye is always larger and bluer than any eye that you could find outside of a wax doll's *phiz*, and the eye is always fixed and staring; and until one becomes accustomed to it, is almost frightful in its effects. The eye itself out of its place and in the hand, would be, no doubt, a beautiful glass toy; but you can imagine how curiously such a thing looks when fixed in an old gentleman's or an old lady's, or, in fact, in anybody's socket. It destroys expression of the face,

of course. The emotions play about the false eye like distorted grimaces. The beautiful blue eye is motionless, fixed, and—don't match. Ye gods and little fishes! you ought to see them! Then you find, everywhere you go, in the corner of nearly every real eye, the most curious little silver tube, like a tear duct, very nicely made, highly polished and with a little diamond set in the middle to show that the ophthalmic surgeon, who has introduced the appliance has had a desire to ornament it as much as possible. You can imagine how queer everybody looked. Of course with my natural and laudable curiosity, I was much interested, and determined to find out all about these eye appendages, and the reason for the curious sameness in the selection of false eyes. Our friend Mrs. P., who, as you know, is such a kind hearted and intelligent old lady, was the first whom I interviewed. She is now about 70 years of age, and wears a false eye—as blue and beautiful as the Danube—while her natural eye is as black as a coal. 'Why in the world, Mrs. P.,' I asked, 'didn't you have your false eye made to match the natural one?'

"'Oh! dear,' cried she, 'my eyes were so dark, and blue eyes are considered so much prettier, that, when one eye began to fail, I took ether, had it painlessly removed, and Dr. A——, our oculist, inserted this. It is much prettier than the other, don't you think so? If I could *see* without the other, I should certainly have it out too, and have a *pair* of these beautiful blue eyes inserted!' 'Didn't your oculist object to the insertion of such an eye, in such contrast to your natural eye?' 'No, indeed! I think he makes the handsomest eyes of any oculist in the city.' Just then, as luck would have it, her daughter, Jane, came in from the oculist's, and, to my horror, she wore a tear-tube in the corner of each eye, each with its sparkling brilliant in the centre. 'Why, Jane!' said I, 'what have you been doing to yourself?' 'How do you like 'em?' said she, with as much *non chalance* as if I had been looking at a pair of ear-rings. 'Why *did* you have those metal things put into your eyes,' I asked. 'Oh! well,' she answered, 'my eyes were troubling me some, and I went to-day to Doctor A——, by appointment, and have been there four or five hours;—but, he does the best work of any oculist in the city. You must know, that weak eyes are very common here, and our oculists have great reputations. Nearly everybody wears these tubes,—or, have false eyes—one or the other! I'm sure, I shall have to wear *one* false

eye before long. My eyes are simply horrid—dark grey. Don't you think ma's new eye appears well?

“Good heavens, ladies! Is it possible, that such terrible deformities are not deprecated here?” “Can opthalmic surgeons, or oculists practice such frightful barbarities in this enlightened land, with the appreciative approbation of cultivated people?” cried I in astonishment. “Why! what would you have them do? Of course, I should have been better pleased if Nature had given me a strong and beautiful pair of large blue eyes, but as she has not,—why, this is certainly the next best thing.”

OUR CHOSEN PROFESSION.

BY DR. I. WILLIAMS, NEW PHILADELPHIA, O.

THE highest degree of success attainable by any individual, in any calling in life, can be reached only when there is a mental and physical fitness for the chosen vocation; and when the individual is fully satisfied that his life-work is useful, necessary and honorable; and when he is thoroughly in love with his work, and has no desire for, or thought of change. How many have sadly missed their proper callings, and as a result, are unsuccessful and discontented. Such persons know nothing of the emotions of satisfaction that thrill the souls of the men who are thoroughly adapted to, and are in love with their work, when some new triumph of their genius and skill has been consummated.

There come times in all professions and every calling in life, when unfavorable influences seem to gain the ascendancy; and often the best minds and the most enthusiastic workers become disheartened by the unpropitious aspect of affairs. To examine some such tendencies in the dental profession at the present time, is the object of this paper.

To the thoughtful and observing, it must be apparent that there is an increasing dissatisfaction in the minds of very many prominent members of the dental profession, with their vocation and its environments.

The causes and influences leading to a state of affairs so undesirable and detrimental to the best interests of our profession, are various and many. The desire, on the part of many to

be regarded as *medical men*, has become a kind of *mania*; and the feeling indulged in and brooded over by this class of persons, that there is not that perfect and full recognition on the part of the medical profession, nor indeed on the part of the people in general, of their *medical attainments*, *just medical status*, and real dignity as medical gentlemen, may be set down as a primary cause.

A proper understanding and just appreciation of this whole subject, it seems to me, is of the utmost importance, especially to young men just on the threshold of the profession. If, indeed, any man desires all the honors and emoluments peculiar to the general practice of medicine and general surgery, then he must abandon the *special idea* entirely, and enter upon the general practice of medicine, and assume all its responsibilities. There is no other way to obtain that distinguished honor. If such be your ambition, and the bent of your inclinations, young man, better see and appreciate the truth in time, "and govern yourself accordingly."

Whatever attention or recognition we receive from the medical profession, we receive, not because we are medical men in the broadest sense of the term, but because we are specialists; because, having chosen an important part of the human organism, "a part forming an essential department of the human frame, having the widest possible range of sympathy, containing a great variety of organs, and performing an equally great variety of functions," for our special study and treatment, medical men give us credit with having thoroughly mastered the fundamental and collateral sciences necessary to a full comprehension of this part of the human organism, anatomically, physiologically and pathologically, in connection with its wonderful range of sympathy with other organs of the body. They give us credit with knowing more about this single department than they, themselves, know; and of being able more intelligently to treat the various lessons peculiar to the oral cavity, and associate parts, than they are able to do. Hence members of the medical profession come to us themselves and send their patients for special treatment. They expect that we are competent to advise with them; indeed, they desire to advise with us (and in this they honor themselves) concerning any diseased condition manifesting itself in the mouth, and by reflex influence, affecting other and often remote organs. In case of

fracture of any of the bones of the face, they expect that we are especially competent and prepared to assist in reducing such fractures, and to make suitable appliances to secure the fractured bones in proper position, till nature repairs the damage. And happy for us if we do not disappoint their reasonable expectations. Our lack of special knowledge and skill in such matters can not be supplemented by any amount of general medical knowledge.

We have always found the general practitioner willing to accord to the specialist all the rights and privileges due in such cases. Our honor will be commensurate with our knowledge, skill and manliness. But above all, we should remember that our *patients* have a right to expect that we are competent and willing, cheerfully to treat the various affections of the mouth and teeth, and abnormal and destructive conditions of the oral secretions, etc.; and for the proper discharge of our duties in these respects, they will hold us responsible. If we show ourselves intelligent and skillful, in our special practice, our services will be appreciated, and suitably rewarded.

The dentist is not expected to have special knowledge and skill in the treatment of typhoid fever, though he may be called upon to treat the sequelæ so far as the mouth is concerned. The oculist is not presumed to be specially skilled in the treatment of scarlatina, and is not called to counsel in such cases, unless the eye is involved; nor does he feel insulted on that account. The fields demanding the special studies of the oculist, gynecologist and dentist, are so vast and difficult, that no one engaged in any one of these special departments, need to "sit down and weep for other worlds to conquer." Only as we succeed in our special lines of practice, can we hope to receive honorable recognition by the educated and cultured portion of mankind.

If those who are so clamorous about recognition, were submitted to a rigid examination, either in dentistry or general medicine, we apprehend that many of them would be about in the same predicament as the young man who was being examined by a county board of medical examiners, when asked, "What he would do in a case of post-partum hemorrhage?" He replied, "That he would *tie* the post-partum artery." Not for one moment would we undervalue medical lore, or discourage any one in the practice of any specialty in seeking the highest medical attainments, and in "coveting earnestly the best gifts." But the object of the true,

born specialist, in seeking any kind of knowledge, will always be to lay it under contribution to the interests of his special work. As President Lincoln said: "What I do in relation to slavery, I do to save the Union. I am determined to save the Union, either with or without slavery." This, then, should be the object of all our research after all kinds of knowledge.

How much I honor such men as Harris, Watt, Atkinson, and many others whose names I might mention, who have so successfully "sought and intermeddled with all wisdom," and have meekly laid the results of their investigations all on the altar of dentistry, seeking no higher honor than is paid to our profession by Kings, Emperors, Presidents, Scientists, and the refined and cultured of all lands. Such men *need* no titles, their deeds make them immortal. With the advancement of civilization, increase of population and wealth, the lines of special study and practice will increase, and better results in the treatment of disease will be attained thereby.

The fact that there are many engaged in the practice of dentistry, who are ignorant, uncultured, unprincipled men, mere charlatans, who resort to degrading advertisements, peddling from house to house, and every imaginable trick to deceive the ignorant and unsuspecting, has discouraged and disgusted many of the best men in the profession. While it is true that all good men do and should deplore such a state of affairs, no one should be disheartened or driven from the honorable and indispensable work for which he has special qualifications. These men are not dentists in any proper sense of the term, and can in no way affect the standing of educated, honorable men in the profession. We should accustom ourselves to think of the eminent men who are our co-laborers, and give no attention to the mere pretender. And, besides, to what profession shall we go to avoid the presence of the charlatan? The medical profession is full of mountebanks who disregard all the rules of decency and propriety. The world is full of patent medicines that cure all the ills to which flesh is heir. Druggists prescribe for every ailment. The leading citizens in every community run after and pay large fees to Indian doctors, who tell them "just where it hurts them without asking any questions." I never have known an earnest physician of well balanced mind to become discouraged and threaten to leave the profession on account of these things. He treats all such outside

influences as if they were matters that in no way concern or affect him. Indeed, he acts as if he were unconscious of their existence. Real merit shines only the brighter on account of the contrast.

The other professions are similarly affected. And what are we going to do about it? Simply nothing. When the people get tired of being humbugged, mountebanks and charlatans will disappear for want of employment.

There remains still another cause of dissatisfaction, that is of sufficient importance to require attention. There is a large class of men in all the callings in life, who have a faculty for seeing the pleasant features in the occupations of other people, and of magnifying the unpleasant features of their own. When we meet a professional brother of this stamp, he is sure to say: "There are some very unpleasant things about the practice of dentistry. I am sorry I ever entered the profession." It must be admitted that there are some unpleasant things connected with the practice of dentistry; but what shall we do, and where shall we go, to avoid things unpleasant and wearisome? A very eminent man of a wide range of experience, in addressing young men on the choice of an occupation, recently said: "There is in the practice of medicine much that is naturally revolting, much that is disgusting, much that is unnatural." How often it happens, that, after weeks of the most vigilant and thoughtful attention to a patient, on the part of the most skillful physician, he receives a note like the following: "We have made a change of physicians. Your services are no longer required." The truth is that there is as little of the unpleasant and disgusting in the practice of dentistry as would be experienced in any other profession with the same class of persons as patrons. It certainly is not pleasant to be associated with filthy, disgusting, unreasonable people in any way; but who that lives can avoid these classes? Dentists have as little to do with the disagreeable classes as men in other professions, and more to do with the refined, cleanly and intelligent. Whatever may be said about perplexity in relation to failures in dental operations, I believe it to be true that dental operations or treatment, in the hands of the skillful, will more certainly accomplish the object intended, than any work done by men in other professions. When a lawyer takes a case, he can have not the slightest assurance that he will win. The constant, everyday use of artificial dentures,

for a quarter of a century, is very common. Carious, and otherwise diseased teeth, when properly treated and intelligently cared for afterward, usually last beyond the expectations of both patient and dentist. We have the advantage of performing nearly all our operations deliberately, and under favorable circumstances. Most of our patients come on engagement, and we are not expected to perform operations requiring much time, without an appointment. This adds greatly to the certainty and satisfaction with which our work is performed. The physician and surgeon are called upon at the most unexpected and unseasonable hours, to perform the most difficult operations; and often under the most unfavorable and trying circumstances.

Much worry and bad success is often occasioned by attempting to perform alone what should not be attempted without the aid of a well-trained assistant. As many of our patients are ladies and children, it seems very proper that a lady assistant should be employed in every dental office. Other considerations must be reserved for a future paper.

BEST MEANS OF PRESERVING THE TEETH.

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[Continued from page 557, No. 12, vol. III.]

It is often the case the filling of a tooth is considered a mechanical operation, and the results depend *solely* on the ability of the dentist to impact gold, contour its shape to that of a tooth, and leave a piece of highly polished jewelry in the mouth. While at the same time he lacks a knowledge of the normal or defective structure of the tooth—the life of the dentine and enamel, and the degree of fibril vitality extending from the pulp, the tonicity of the pulp to withstand the repeated *shocks* or concussions during the process of malleting (for I have no doubt if the same concussions were produced with either the electro-automatic spring or heavy hand malleting on the cranium, molecular disturbance would be so great on the dura-mater, arachnoid membrane, and pia-mater, that, in many cases, lesion would result); or

the predisposing causes for caries,—neglect cleanliness, the irregular arrangement of teeth, systemic conditions, whether the saliva be excessively alkaline, or the mucus excessively acid, or vice versa, or the diet of the patient has been such as to have an excess of saline matter in the blood. Hence, the exudations from the gums, reactions, evolution of gases, and formation of destructive acids, upon slight invitation into secluded spots, which are generally proximal surfaces, or cervical edges of proximal cavities, or depressions, or *sulei* in molars and bicuspid. With all these *positive* conditions that cause or promote caries, and being *neglected*, we can readily understand why there is such a diversity of opinion, as to modes of operating, material used, and instruments employed, when it is claimed to be done in a very *artistic* manner.

Cavities in proximal surfaces require a different, or more careful attention than simple crown cavities in molars and bicuspid.

In preparing and filling proximal cavities, we must observe several indispensable conditions:

FIRST.—Frail edges of enamel, must be polished to soundness, with discs or tape; for chiseling will check out rods, leaving an injured surface, unless great care is used. Dentine, with the line of life cut off, should be removed; but if possible all enamel and dentine should be supported with fibril life.

The coronal and cervical walls are frequently left without sufficient life. Hence death and disintegration have easy work, especially at the cervical wall, owing to the nature of the location, while in the crowns, the nature of the locality leaves the surface protected with life, and is self-cleansing. Now, to make these proximal cavities secure, we must learn a lesson from our successful *crown* fillings. When *abnormality is apparent*, we must make and leave *free* separations, not V shape between crowns, which would permit impaction of food, but lingual or palatine, and sometimes buccal surfaces.

The shoulder at the cervical wall should be nearly at right angle with the pulp canal, with a slight depression, or corners at the bottom, so that the dentine and enamel can retain life by anastomosis, with the enamel so beveled on the outer rods, so as to make a perfect joint.

SECOND.—The material to be used for filling is of great importance. The structure of the teeth, the age of the patient,

possibilities and probabilities of patients' care of their teeth, health, full arch of teeth, or few only.

With young patients, where the tubuli are large, pulp large, and possibly the development of dentine not yet completed, a filling of vegetable substance, in contact with the dentine, is of great importance, and is most undoubtably indicated.

We have the *inorganic* or mineral, and the highly vascular, and delicately organized animal life, and when we recognize the elements of creation, and organized life, we find mineral (crystal), vegetable (cellular), and animal (corpuscle) life, and the positive incompatibility of corpuscle development while in contact with the remote mineral or crystal formations which, during the period of development of the permanent or temporary teeth, it would be an irritant and intolerable. *Gutta percha* possesses the elements of a *material for this treatment*, giving the best results for permanency, and for all other cases of hyper-sensitiveness, or irritability of tissues, or *white decay*. I do not consider this *permanent* work, but in these cases, it is the *best* material known; and a step to permanency, and in time the tooth may be filled with materials more permanent. In teeth fully developed in structure, oxy-phosphates or oxy-chlorides *may be tolerated*, or in pulpless tooth crowns; *but never below the gum line*. The *oxy-chloride* is a powerful irritant, and is corrosive to corpuscle life; and so is the *phosphoric acid* in the oxy-phosphates. In perfect or normal teeth, metal is the best material for permanency, to bear or resist attrition.

Gold, when made extra harsh and hard by imperfect annealing, or by imperfect manipulation in getting it ready for dental use, renders it a poor material for a successful filling. Excessive malleting pulverizes the structure, or may produce concussion, and lesion of the pulp and periosteum.

If any dentist has never used gold, other than the hard, harsh, heavy cohesive foil, with the persistent malleting, or the carbonized, imperfectly prepared, noncohesive foil, with stuffing, blocking, wedging, excessive hand pressure, to get up cohesion, he, or they, have lost many glories in gold building in filling teeth.

I desire to impress the necessity of *using gold, soft, pliable, and cohesive, in a form ready for use*. All gold, if properly prepared, possesses these qualities, when fresh, but it *will lose them by age, or unskillful manipulation*.

Comparatively few of what are termed *soft foil fillings*, are what they import to be—noncohesive fillings, but in nine cases out of ten, they are simply poor excuses of a hobby, and poor cohesive fillings.

A combination filling, generally known as tin or amalgam, at the cervical wall, or at the bottom of crown cavities, is simply a *graded* filling like our *graded stock*, a compromise between a *thoroughbred* and a *scrub*, for the sake of *economy*, and it is questionable. I have known of *tin* fillings from the hands of some operators costing the patient equal to gold fillings, done by less pretentious and equally skifful operators. Tin makes a good filling, better than many gold fillings, for there are many *poor* gold fillings made. If a dentist can make a better or as good tin filling as he can of gold, I say use tin. But don't make a hobby of combining tin and gold, or making a "liver pad," and then wearing it in your mouth. If the medical profession must have a *liver pad*, any dentist who wants a *tooth pad* ought to have the privilege, for if specific results are produced in the one case, similar results may obtain in the other.

I do not desire to say that a tin cervical and gold crown combination filling is not a success, but I do say that gold of the same texture as to *softness*, with mechanical adaptability, with cohesive affinity and rational impacting force, the desired results are obtained to a higher degree of perfection with gold than with the combination, leaving out the magnetic possibilities, for tin will and does present the difficulty to apparent disintegration after severe, uneven, irregular malleting. Even poor qualities of gold present the same phenomena.

All cavities should be *thoroughly dry* and lined with an antiseptic, non-conducting insulator—collodion, balsam or liquid gutta percha, or in some cases where there is no danger of fibril irritation, oxychloride may be used.

Gold beaten into Nos. 2, 3 and 4 can be made into cylinders, placed into glass phials, and their *fine* properties preserved for a longer time than by keeping them in book form.

The cylinders should be of proper size, so that when they are placed in the bottom of the cavity, supported at one corner with a holder, the other corner can be secured with a proper shaped instrument by hand pressure so as to thoroughly condense, then exchange the holder to the condensed corner, and thoroughly

secure the first layer, or layers, and carefully cover the enamel edges, and build the opposite parts of the cavity first, so that there will be no deficient spots. Then continue the process of gold building, until the filling is completed. Heavy numbers, say No. 30, *cohesive* gold, makes a *harder* surface, and receives a finer polish, than the lower numbers. In building crowns, the finest results are had by using gold and platinum rolled. This foil does not *batter* in use. In partial contouring, No. 30 is the best number for use.

Great improvements have been, and are now being made, in the manufacture of amalgams or alloys.

Pure metals are now indispensable in the compounding, and by the proper proportions and temperature attained above fusion, gives the alloy *edge strength* and prevents oxidation, or discoloration.

Alloy is like pure gold; in one respect, it possesses *finer qualities* when *fresh*, than when made for some time. The native quality of crystals with all metals, is no doubt nearer its equilibrium when cool after fusion, and any alloying or perversion of molecules, the disposition is to *change*. Gold and other metals possessing the qualities of cohesion by force of their particles together, are the least to change; but this property is lost by age.

Amalgam, or alloy, possesses the quality of easily or quickly setting, or forming a new distinct crystal compound, while newly cut; but in time it loses this quality and becomes a slow setting alloy. Manufacturers, I learn, hasten its age, or "aging," as they call it, by placing the filings on a tray in an oven, and raising the temperature, until the desired *age* is satisfactory.

Alloys that do not tarnish or shrink, now find their resting place in teeth, by the hands of some of our finest operators. Reducing the expense and making satisfactory fillings, where gold would have to be excluded, and consequent loss of teeth and employment.

Liquid gutta percha for filling roots of teeth now seems universal, and better results are attained than by any other method for the greatest number of cases, vegetable *compatibility is the secret*.

One fact, in connection with the *use of plastics*, I find will bear emphasis. It is this: oxychloride of zinc and the *phosphate* fillings should be dispensed with in the third or fourth class of

teeth and in white or yellow tinged caries. They cause death of the fibrils, odontoblasts, and even the pulp itself, in a great number of cases.

Many pulps die without any manifest cause, and putrescence of the tissues is converted into gases, or the pus escapes through the surrounding tissues and may produce septicæmia, resulting in neuralgia, or it may locate in some weak point, possibly in the lungs, forming abscesses or tubercles, terminating in consumption.

. As a "*liner*" of frail walls the use of oxychloride of zinc has proven *two* points; *first*, the *decay ceases* but it does not stop at that, but goes on to the other point. *Second*, the *pulp ceases* as a live pulp. Therefore, a close discrimination for the indications for its use is of great importance.

In all cases of *sensitive dentine*, *gutta percha* is indicated, and should remain several months. The *safest* and best results are thus obtained.

When we use alloys we should always take as much care in preparing and drying, as for fine gold work. The rubber dam is indispensable in all cases, as well as in lining the cavity with liquid gutta percha. When the filling is solid, polish the surface with fine paper discs, strips or pieces of wood, and *avoid burnishing* alloy fillings at the *marginal joints*, for the filling edge may crumble, leaving a depression not self-cleansing, and disintegration may begin.

After your work is completed, exact a promise from your patients that they will pay thorough attention to brushing their teeth, and return for examinations not longer than once every three months.

THE LAW OF PROGRESS—THEN AND NOW.

BY J. A. ROBINSON, D.D.S., JACKSON, MICHIGAN.

THERE are so many causes that underlie progress in science or the arts, that it will be impossible to give a solution of the different steps of evolution in dentistry within the past fifty years; but we can point to some prominent features in the great work that has been performed, and perhaps bring forward a few central figures that stand out as landmarks along the road. We

began so in the dark in the early days, that long years elapsed before many rays of light shown along the pathway to illumine our profession even into twilight. There is no power in the world but truth; and rational evidence is only the perception of spiritual causes. It is a great step forward, when Dr. Morrison says, "I extract no teeth that I cannot take out with my fingers," from the old way of taking out every tooth that caused pain; and it is quite comforting to know that we had the honor of writing so long ago, "The motto should be *no teeth extracted*, instead of teeth extracted without pain." What would be thought of a person to-day who should try and make a set of teeth out of the thigh bone of an ox, as we did when quite a youngster, to be tied into the molars that remained, in the mouth? or to carve an upper plate out of a piece of ivory, and fasten six front porcelain teeth upon it, with wooden pivots, as we did forty-six years ago for the mother of Ralph W. Emerson, of Concord, Massachusetts? Then we got such an impression as we could with common bees-wax, applied with the fingers, before plaster had been thought of, or an impression cup, or modeling compound, which is, perhaps, the best method of taking impressions to-day for partial lower dentures. It is often superior to plaster itself, and is always better for models for regulating teeth, either with screws or the "Coffin plate."

The relation of events to each other is the proper way to arrive at a knowledge of the progress we have made in a profession. Twenty-nine or thirty years ago a man by the name of Tisdale, came into our office in Cleveland, Ohio, with a coarse preparation of oxy-chloride of zinc, as a new filling to preserve the teeth; and out of that has grown all the different oxides now so numerous and useful, and that seem indispensable in dental practice. The last step in this direction is that of mixing oxy-chloride with Robinson's fibrous textile material to make a filling compound without mercury, on the same plan of the birds, which build their nests of long sticks and straw for strength, and line them up with clay that would not stand the washing of the rain without the fibres of the straw and wood. Rubber plates were made possible because Goodyear had learned how to vulcanize the rubber. Slayton made a few plates of gutta percha before that time, and partly gave the process. How few, even to-day, understand that it is necessary to have greater force than is generally

used to condense the rubber; and a less number still, think that rubber should be vulcanized at 320 degrees for 45 minutes, and then run up to 340 degrees before it is shut off, making 55 minutes to vulcanize to get the best results. Vulcanized in this way, you have a rubber as much superior to that cooked in a shorter time, as steel is superior to common iron—more elastic, much stronger and of a finer quality.

No gates should be cut in the plaster as usual to allow the surplus rubber to escape, except a very slight one at the posterior part, and the only one necessary is through the natural openings between the flask where they go together. If the pressure is strong, and slow enough, all the surplus rubber will pass out that way.

It is probable that dentistry has advanced as rapidly as any one thing within the past twenty years; and the American dentist is the product of the nineteenth century; and yet our ranks are filled with men who lack *faith*, which is the back-bone of push, to carry us to that degree of excellence required to make us a living factor in the hearts of the masses of the people. There is a sort of disagreement among ourselves about remedies for ulcerated teeth; and we stay in the old ruts because it is easy or more convenient. Ulcerated teeth and roots are more easily cured; but there are comparatively few dentists who think it worth while to spend from half an hour to an hour, and, perhaps, more than once, with a fine German broach that has been softened by passing through an alcohol blaze to extract the temper, and then with small threads of fine cotton wound round the barbed end, use it as a force pump within the nerve chamber filled with carbolic acid, till the fistulous opening shows the *eschar*, if there is a fistulous opening; and if there is no opening, to force the carbolic acid through the foramen until the sack is destroyed, and made into a soluble compound to be taken up by absorption in time, as the cicatrices are absorbed in wounds that have been sewed up, until, by some mysterious magic, there is scarcely left enough for a scar to mark the spot.

I say there are comparatively few dentists to-day who have risen to faith in the fact, that this can be done, *as it surely can be*. Carbolic acid is a stimulant, and while it destroys the virus, it tends to produce new granulations. It is also an anodyne, as it will relieve pain. The Alveolar process tolerates carbolic acid as

kindly as the flesh tolerates silver; and there is no rebellion if there is no air forced through the foramen in the process of treatment.

It will take only faith and patience (both Christian graces) to convince any one that it is useful and practical. The new thing called "bridge-work," is only the new method of an old plan. It was the custom of Dr. N. C. Keep, of Boston, to expand porcelain blocks sufficiently to overcome the shrinkage in vitrifying, and fasten those blocks of five or six teeth, to two or more straggling roots, more than thirty-five years ago, and we have made more than a hundred cases of that kind, when we made block teeth, and abandoned the practice on account of the filthy condition brought on by continuous wearing in the mouth. Also, the gold plates, called "*horse-shoe* plates," were, many of them, placed permanently in mouths at that time, and they were also abandoned because they were filthy.

The new inventor may be young, and believe it is new; but it certainly is very old, and very bad practice, if you value a clean mouth. The Richmond crown, and also the Bonwill, since the body of the Bonwill has been made stronger, are certainly great improvements on the old method of setting pivot teeth; but they should be set with the oxy-phosphates instead of amalgam, which in time discolors the tooth, and gives the appearance of a dead tooth.

The "New Amalgam" made with Robinson's fibrous and textile material, is worthy of a trial. Dr. Flagg, of Philadelphia, says, "It is not an amalgam, but a mixture;" but is not the mixing together of tin, and silver, and cadmium, and bismuth with mercury, a mixture? When the fibrous material is cut lengthwise of the fibre, and disintegrated, or picked to pieces, it is wet with the liquid till it is thoroughly saturated and then mixed with oxy-chloride of zinc, till it has the consistency of putty for use. Then place it in the cavity that is kept dry with the rubber dam, and throw hot air upon it for about 30 seconds, and it will harden in one minute, so that it can be finished, with a wet burnisher, to be as smooth and hard as glass. With the oxy-chloride, *which is white*, it is nearer the color of tooth-bone than any filling known, and, as it adheres closely to the walls of the tooth, it promises to be quite permanent.

The time has come when we look at causes; and the journals

teem with thoughts and reflections about saving teeth and gums. A simple, "old woman's remedy," to close the pockets after the tartar has been removed, and also to tighten teeth that have become loose, is to take, every morning, a crystal of salt, rock salt, such as is used in salting pork or beef, and hold it in the mouth, and pass it round the gums with the tongue, both outside and inside. This will necessitate the holding of the salt more than a minute in the mouth, till the saliva is turned into brine, to harden the gums. If people take salt into their mouths, the tendency is to get rid of it as soon as possible; and we lose the effect obtained by dissolving a pebble slowly in the fluids. All hemorrhage of the gums that takes place after, or while cleaning the teeth, will stop in two or three applications; and the gums will assume a healthy appearance.

We read, in some journal a while since, a plan to tighten a loose tooth by fastening it to the adjoining tooth; that is worthy of a trial. Make a yoke of a small gold wire by bending the ends at right angles, then cut a trough in the cutting edges of the teeth sufficiently deep to receive the yoke, drill holes in the outside edges of the teeth to be tightened, about a line deep, to receive the ends of the yoke, and cement it in with Weston's insoluble cement. We have sometimes carried it across the front lower incisors, and fastened the ends in the cuspids with good success.

In almost every paper that has been written on *Pyorrhæa Alveolaris*, the language has been more descriptive of the process of its ravages than of its cure; yet one of the fundamental things is to be sure and keep the teeth tight and the pockets closed, so the cure can begin from within, where all life and cure begin. In the twilight of dentistry, the plan was to keep every method in the dark; now we illumine through the journals all we can. Then no contemporaries were invited beyond the threshold of the office. Now in the west, we take each other by the hand, and bid each other welcome, and call ourselves brothers.

PULP CANALS—OPINION.

BY JOHN FELIX BOYD, M. D.

A CANAL is presumed to have been thoroughly cleansed before filled. But this is not always the case, because not always practi-

cable, nor is absolute cleanliness even necessary, but it is always better so. Enough of the dead pulp or debris in the canal should be removed to enable the smooth exploring broach to pass to the end of the canal—at the apex. This much is necessary to insure success. Whatever additional removal of debris can be accomplished, should be, as perfection and cleanness are intimately associated in filling root canals.

A canal should be measured if possible, and measurement is always possible when there is accessibility. It is an easy, simple matter to pass an unbarbed broach through a bit of rubber dam before inserting it into a canal; and to push the bit of rubber to the entrance of the canal, when the operator is assured that the broach has passed to the end of the canal at the apex, *but not through it*. To pass the instrument through the apical foramen *is a crime*, unless there is pus there to be drained through the root. After the depth of a pulp canal has been definitely estimated the measurement should be preserved for a guide in the subsequent process of filling. The canal at the apex should be stopped with *gold or tin*, because of their malleability and purity.

The metal used (gold or tin) should be in foil form, and cut into rather narrow ribbons. These should be introduced one at a time, by rolling spirally around, a canal plugger, and thus carried to the end of the canal at the apex, *but not through it*. By reference to the measure obtained in the outset, the operator can determine just how far the first piece of filling material has been forced, and how much of the canal remains to be filled.

The entire canal may be filled in this manner if the operator so prefers; but is in no wise necessary. If one-fourth of the canal has been carefully filled with gold or tin, the operation may be completed by the simplest method, which is to introduce cement, gutta percha solution, or shellac varnish by means of shreds of cotton wool. The fibres of cotton are readily forced to the end of the unoccupied canal and packed there, carrying in the meshes either of the preparations named, which hardens in position, occupying the canal to the exclusion of all fluids and gases. In canals sufficiently accessible to admit of it, the precaution should always be taken to fill at the apex with gold or tin, in order to prevent any filling solution or varnish being forced through the apical foramen, in the subsequent part of the operation of stopping the canal.

A pulp canal may, on presentation, contain sulphuretted hydrogen; but if there is no soreness (i. e. acute periostitis) no matter; for if the contents can be run out, the canal may safely be filled at the same sitting. But everything depends on manipulation in cleaning the canal.

Precautionary measures must be observed at each step. No air, gas, pus, or fluid of any kind, should be compressed in the canal, either in cleansing or filling, as the smallest quantity of anything—even air—forced through the apical foramen, will superinduce acute periostitis, and all the routine symptoms of inflammation, possibly culminating in alveolar abscess.

When an abscess exists at the apex of a root, and refuses to discharge through the canal, after pumping with broach and oiled or moist cotton, it is bad practice to attempt to puncture the pyogenic membrane, or dislodge obstructions, with a view of forcing a flow of pus, by thrusting a broach through the apical foramen, because such violence always results in severe inflammation and renewed pyogenic activity. Thus nothing is gained, and much may be lost, as a pyogenic sac will always quickly refill when suddenly evacuated. The practice of attempting to destroy an evacuated sac, by flooding it with an escharotic, is highly improper and harmful, as the coagulated albumen must be disposed of by the vascular surroundings, and all the dreaded symptoms of pain, swelling and increased pus, must follow.

This latter treatment is often followed by nervous prostration or fever, and more or less pyæmia. If after the canal has been filled, there should occur an accumulation of pus at the apex, it will find an opening for itself through the gum, which is the true proper means of drainage. A tooth can never be otherwise than damaged permanently to a greater or less degree, by the passage of pus or escharotics through the pulp canal. Therefore, an abscess should never be treated through the canal. Even one application of the ever handy and pestiferous carbolic acid, is once too often.

NOTES.—Whenever a pulp canal is empty and the tooth not painful under slight concussion, the canal should be filled permanently. A canal may be safely filled immediately after evacuating the pus-sac and when there is some periostitis. The manipulation is disagreeable to the patient, but this in nowise jeopardizes the success of the operation.

A canal should never be subjected to an application of carbolic acid, creosote, iodine, chloride of zinc, aromatic sulphuric acid, or anything that will coagulate albumen or pus.

Sulphuretted hydrogen or pus should be removed from canals by *displacement*. To do this the swab of cotton in the broach should be loosely wound, and smaller than the canal, so that, as the swab passes along the canal toward the apex, the gas or pus may escape beside it. If this precaution is always observed, no compression can take place to force gas or fluid through the apical foramen, and no inflammation will follow.

In nearly all cases, the shorter method is the better, to cleanse the canal and fill it, as directed, at the first sitting.

If any inflammation ensues, prompt treatment by ice directly on the gum, over the root, will allay local fever, usually.

If there should be pus formed, after stopping a canal, apply local irritants to make it point on the gum.

When a canal has been properly filled, as herein described, any fistulous openings on the gum will soon disappear, without further treatment, because they are phenomenal and dissipated by disuse.

Protracted medication through root canals to treat alveolar abscess or periostitis, is an antiquated nonsense.

If a dentist will depend more on correct manipulation, and have less to do with escharotics, in root canals, he will have better results, and his patients will be better satisfied.

Correspondence.

"I charge you that this epistle be read."

For the Ohio State Journal of Dental Science:

DR. WATT:—You would have something from me for old time's sake. Very well; what shall it be? What shall a retired man, a shelved, pushed back in the niche, say about dentistry, whose tabernacle has been lifted up and carried so far forward during the last forty-five years,—which has grown out of its old clothes, and left almost every feature of its former self away back in the wilderness—among the drifting sands of the receding cen-

turies? Suppose I tell how I found the art—profession? That's a bigger word; at any rate it sounds better. But first, I want to thank you for reminding me of the long ago. I was your senior by eleven years; but I remember you in 1824—I remember you in the good old days when, as school boys, we had to make our bows with hats off when we went in and out of school, and when we met grown people on the road, and to speak only when we were spoken to by seniors; and how, when we carried home news from school, the switching was sometimes duplicated. But we didn't either of us know anything about dentistry then—had never heard tell of such a thing.

The first dentists whose acquaintance I made were, Edward, James and Joseph Taylor. I knew Joseph first, in 1833. He was on a professional tour. He cleaned my teeth to pay me for breaking to the saddle a young horse he had bought.

Dentistry was then in its swaddling clothes. I wish, for the amusement if not the benefit of the present, I could exhibit on paper my kit and laboratory, in 1838, and several succeeding years. I wish I had it all now for a cabinet of curiosities; but, antiquarian as I am, I have not preserved any of it. Still, I return mentally to my little vise screwed to the leaf of a table, and sit there shaping artificial teeth from elephant or hippopotamus teeth, with saw made of a watch spring, and sundry files, and then drilling the pivot holes with drill and bow-string. I had never seen a porcelain tooth. We “plugged” teeth then with coarse tin foil, and soft gold foil in quarter ounce books. The instruments we used would be curious enough now. Our excavators were bits, used in a common socket with an ivory handle. The first amalgam I ever used I made myself by filing off block tin and silver, equal parts, I think, and a small per cent. of copper, I mixed it with the index finger in the palm of the left hand, and squeezed the mercury out with the thumb and finger.

And I take this place to say, that in the field of my career, of forty years, in Lancaster and Fairfield County, there are to-day thousands of gold fillings made with old-fashioned hand-work and soft foil, some of them forty years old, that are intact. Some of them, in round cavities, are as successful as any work I have seen in my life. You will allow one who is in nobody's way now, to brag a little, wont you? I claim it as due. And there are others who could make similar boasts of their soft foils and hand-work.

The first forceps I ever used were made by the Reece Bros., of Cincinnati, (I believe the name was Reece). The next were Sherwood's. I have never yet found any upper molar forceps to equal those of Sherwood. I shall hold on to them while I live.

I went from the medical into the dental profession. Dr. Henry Chenowith, of Circleville, was my preceptor; but I was aided afterwards by Dr. Allen and others, of Cincinnati. I commenced in 1838. Dentists of the West, in those days, itinerated; all of them. I spent part of the years 1838 and 1839 in Kentucky and Tennessee, and settled permanently in Lancaster, O., in the spring of 1841.

We worked on almost any kind of a house chair—a high-backed rocking chair, if it could be had, with the rockers stayed with blocks; but most dentists carried head-rests with them, which fastened on to the back of common Windsor chairs. The most of the work was done by traveling dentists at peoples' houses, and was paid for. The gap between then and now, both in years and efficiency, is wide; and I know of no dentist living now that I knew then. I do not think there is one in the West.

I have passed through joys and sorrows; I have shared the pleasant and the unpleasant; but, in the aggregate, the pleasant has predominated. I have seen also some of the ludicrous, and if you will pardon me, I will close with the relation of one out of hundreds of cases.

A stout, athletic young colored man had been annoying me ten days with the tooth-ache. He wanted something put in it; but if it ached again, he was going to have it out. He came almost daily. I resolved to bring the worry to an end and did. He came in one afternoon when I had a lady patient. I told him to leave. "O, marster, (he had been a slave), I wants it pulled dis time, sho." I invited the young lady to step down stairs with the family. I then ordered the fellow to take the chair, very positively. He shook like an aspen. It was the first molar on the right side below. I stood on a platform behind the chair. With some delay and trouble I fastened my powerful forceps, and clinched the jaw with my left hand. I could have held an ox with the same hold. But no sooner had I begun to apply the power than he placed his feet against the window sill, and with one Herculean lurch, upset the two hundred pound chair backwards, emptying a quart of blood and water on the carpet; and

dentist and negro were floundering on the floor in the middle of the room; but I was just mad enough to hold my advantage. He pounded the floor with his brogans, and bawled like a terribly frightened calf, while his contortions were desperate. But I kept his head to the floor, though I had no power to use in the right direction. The women screamed and ran out into the yard. Pretty soon heavy foot-steps were heard rapidly ascending the stairs, and five or six men entered the room. "What in the world is all this noise about?" was hurriedly asked. I was winded, but I explained as well as I could, with the little breath I had left, when, instantly, four stout men lit down and pinned the frightened negro's legs and arms to the floor, and I tore the monstrous molar from its socket. The fellow was on his feet as quick as a cat, and sprang down the stairs, closely followed by myself with the up-lifted poker. The front door was completely blockaded by more than fifty people, who had run from all directions. The negro stood trembling with his arm up, to ward off the blow. I explained the situation to the crowd that had collected to witness the sequel of a murder. Some one on the pavement called out, "Give him one crack anyhow." I made a flourish, and the poor fellow, with an almost super-human leap, cleared the heads of the crowd that surrounded the ballustrade of the portico, and fled up Broadway for his life, two or three adding to his impetus with their boots.

I suppose you have not forgotten the turnkey, the hand-hook, crow-foot, Bell's elevator, and the screw. Some of them were invaluable before the days of improved forceps. And of course, you have passed through the era of generally useless and sometimes mischievous nerve-capping, fang-filling, and the attempted restoration of necrosed fangs, bleaching of crowns and the cure of sensitive dentine. Much of this practice I have found to be trying to do what can't be done.

H. SCOTT.

LANCASTER, O., November 25, 1883.

TO DISGUISE THE TASTE OF MEDICINES.—Bitter and nauseous salines are best taken simply diluted with iced water. A mouthful or two of iced water, before or after the dose, to blunt the sense of taste, and the dose between them in a wineglassful of iced water, renders it easily taken by most persons.

Editor's Specials.

"Write the Vision and make it plain."

THE PAPA-W DIGESTER AGAIN.

IN the first volume of the JOURNAL, on pages 303 and 304, we called attention to the active principle of the common papaw, as introduced by Professor Van Antwerp, for the purpose of digesting effete matter from diseased pulps. There we suggested its use in general surgery as an application to indolent ulcers, fetid sores, etc.; and later we read a brief paper in reference to such use made of it by Samuel Wilson, M. D., of Xenia, Ohio. This paper by Dr. W., which is found in the *Transactions of the Ohio State Society*, as well as in the JOURNAL, volume III, p. 26, describes its highly successful use on old ulcers of syphilitic origin, after ordinary treatment had failed for months in succession.

In the second volume of this JOURNAL, p. 100 date of November 29, 1881, Dr. S. W. Sparrock, of Pointe a Pitre, Guadeloupe, W. I., writes that although the inhabitants of the West Indies have always had recourse to the leaves or fruit of the papaw to make meat tender * * * yet it never entered into the idea of any one to employ it in dentistry. That has been left to Dr. Van Antwerp. Then he reports a number of cases in which he has successfully used it.

Professor Van Antwerp first reported his use of the papaw at the spring meeting of the Mississippi Valley Association, in 1881. And we understand, but are not positive, that his first observations were made the summer previous, or in 1880.

Now, very lately a fragment of a copy of the *New York Tribune*, for October 22, 1879, has been laid on our desk. And we lay it before our readers, although a part of the article is wanting. The reader will see that it stops abruptly, without the aid of even a comma. It is as follows:

"PEPSIN FROM THE PAPA-W.

"The subjoined note from a frequent contributor, 'J. M. M.,' contains a suggestion that may very possibly yet be carried into execution in some form:

‘The peculiar properties of the ‘papaw’ tree of the West Indies in causing the separation of animal tissues, and thus making fresh meat tender when hung among its branches, is a fact verified by numerous travelers. This tree is entirely different from the tree known as the ‘papaw’ in the United States. Its botanical name is *Carica papaya*. An English publication, *The Chemist and Druggist*, suggests that some preparation might be made from this tree, retaining the virtues of the fresh leaves. ‘Such a preparation would be very popular, and would soon become one of the necessities of life, without which no careful housekeeper would allow herself to be left.’ As the tree is abundant the probable expense of collecting the leaves would not be great. If, as has been stated, the quality of meat is not in any way injured by the vapors of this tree, it would be worth while for those situated so as to command a supply of these leaves to experiment with them and prove whether a portable preparation can be made retaining the wonderful power of the growing plant in a form available for domestic purposes.’

“We may add that Wurtz and Bouchet, French chemists, have recently examined the milky juice obtained by making incisions in the trunk of this tree. The juice coagulates immediately on exposure to the air, and separates into a clear liquid and a watery pulp. From the liquid a white powder is easily prepared that can be kept without alteration and is readily soluble in water. This solution possesses powerful digestive properties; lean meat is almost entirely dissolved in ten hours by a warm solution of one part of the powder in fifty parts of water. The solution coagulates milk, and then in time dissolves the caseine. The pulp also gives with water a mixture possessing equally digestive power. The sap of the tree evidently contains a ferment very similar to the pepsin of the”—*N. Y. Tribune*, Oct. 22, 1879.

Now, although this may antedate the experiments of Professor Van Antwerp, it takes no credit from him as an original investigator, for the whole history of the case goes to show that he was surprised into his discovery by finding his beefsteak in contact with the leaves partially digested. The physicians and dentists of the West Indies, according to the testimony of Dr. Sparrock and the scrap quoted from the *Tribune*, must have been familiar with similar phenomena for an indefinite period, yet they never thought of its practical application till very recently, while

Prof. V., at first sight, enlists it at once into active service, with the most satisfactory results.

But another view of the matter establishes Prof. V.'s claim to originality; and that is the fact that the two trees under consideration are not identical, as is plainly pointed out by the *Tribune* extract. The one referred to in the extract is the *Carica papaya*, a tree with a long naked trunk, with leaves at the top, each on a long foot-stalk, while the fruit is said to be the size of a melon; while the one used by Drs. Van Antwerp, Wilson, and others, is the *Asimina trilobia*, branching from the ground up, and yielding a fruit as familiar to the reader as it can be to the writer.

The active principles of both trees should be more carefully and thoroughly tested, for the subject is not yet receiving a tithe of the attention it deserves. As a local application it is evidently far superior to pepsin.

An aged and very feeble man received a slight injury on one of his hands. Symptoms of gangrene were manifest. He called on the writer and Dr. Sillito. A single day's use of the decoction of papaw leaves left the wound clean—entirely free from all dead matter, and at the end of forty-eight hours healthy granulations were springing up over the entire surface, and the sore healed without other treatment, and this though it had been very difficult, for years, to get even the most ordinary hurts to heal on this patient, so low was the grade of his vitality.

The leaves and the rind of the fruit of the *Asimina* (our papaw) have been tested, and both contain the digestive principle. As the dental profession has first called attention to it, we should by all means complete the investigation. Let the pulp of the fruit and the bark from the roots and the trunk of the tree be tested. Let us know all about it. Our attention has lately been forced into other directions, but we feel certain there are members of our profession who are competent and who can *make* the leisure necessary for a proper investigation of this matter. It will take the place of pepsin in many cases, and is more readily obtained.

Already it is receiving the attention of some pharmacists; but as new medicinal agents are received with suspicion, something can be done, and by us, to hurry up the introduction of this valuable therapeutic agent into general use. Let it be promptly

done. We shall be always glad to lay any report of properly conducted experiments on this, or other subjects, before the readers of the JOURNAL.

MEETING OF THE OHIO STATE SOCIETY.

WE are sorry to learn that the late meeting was not numerously attended. It is confidently expected that the next one will be better than most of its predecessors. There are signs of life manifest already, as we can personally testify that at least two of the important committees are even now hard at work. We hope that the committee chairman that does the most and best work between now and the next meeting will be rewarded by an election to the presidency of the society. It would show a proper appreciation of earnest and efficient work.

It was our sad misfortune to not be present. We had a good excuse for absence. Many cannot say as much. Let all who can not atone for their dereliction by attending the next meeting, each with a volunteer essay, and duly prepared to discuss one or all the topics in the programme intelligently. Ours ought to be the best State society in existence. It is, perhaps, more intimately associated with journals and colleges than any other. Though the pages of our journals are open to all the societies, yet at least two of them—the oldest and almost the newest—seem to be intimately related to this society. If we mistake not, this was the first society to adopt a code of ethics, the same substantially with that afterward adopted by the American Dental Association.

We would urge every member to do something, at an early date, to add to the interest of the next meeting. Begin a series of experiments and observations, the results to be reported at that meeting. Select a subject, each of you—select it now—one that you intend to investigate, and you will find yourselves thinking about it at leisure hours almost unconsciously; and a few weeks before the meeting, sit down and write out your views on it. You will be surprised at your clearness of thought on it, as compared with your thoughts on other subjects. All this, and more, is only your duty; and you will feel better by discharging it.

Some may have papers prepared for special periodicals. Judging by the past, we presume the society would allow their use

jointly with said journals; and yet accept them as parts of the transactions of the society.

We take pleasure in calling your attention to our report of the late meeting. It was made by one who has not hitherto reported for the JOURNAL; and as a synoptic report we regard it as first-class. The identity of the speakers is so well preserved, as to style of expression, that we can often tell whose thoughts we are reading without reference to the name.

Let us all see that nothing personal shall mar the next meeting. Ax-grinding should be rigidly excluded. Let not the society be made a tool, or a means of forwarding the private interests of any individual, college, journal or business house. Let there be nothing but legitimate business brought forward, and we will have a good meeting.

DIAGNOSIS—ITS IMPORTANCE.

WHAT's the matter? That's the question. And success or failure turns on a correct answer, in the practice of dentistry as well as of medicine. Our observation as a physician leads us to believe that a majority of patients are treated while the physicians lack clear views as to their diseased conditions. Our advice to all young dentists, as well as physicians, is to give close, earnest, persevering attention to diagnosis. Set your hearts on knowing the exact state of your patients' constitutions. Till you *know*, you are not ready to *do*. You have no right to treat diseased conditions by guesswork, because health, and perhaps life is at stake.

But it is not our purpose to give a general nor a didactic treatise on the subject but to speak at random, mostly in the way of suggestion, hoping that some reader may be thereby awakened to increased interest in diagnosing disease.

We suppose physicians are sometimes surprised, and possibly amused at our mistakes in diagnosis. We certainly can return the compliment in reference to many conditions of the oral cavity in which they are astray.

A physician often becomes alarmed at what may result from an alveolar abscess. Often have physicians called our attention to a fistulous opening in the gum, now absolutely painless, and discharging so slightly, as to cause little if any annoyance. They

have, time and again, brought such patients to us to have the corresponding tooth extracted so they could apply appropriate treatment to the necrosed maxillary bone. The tooth being both comfortable and useful, of course we would decline to extract. "But think of the necrosis!" they would urge. And when told that if the case became troublesome the tooth could then be extracted, and all would be right, they nearly always seemed incredulous and still dreaded the necrosis. Their trouble resulted from want of thinking that the necrosis was confined to a small spot on the alveolar process, and was in no way connected with the maxillary bone proper, and that after extraction the entire process would be absorbed, and the necrosed spot undermined and carried away. Many laymen and women have come to us frightened at what their physicians had told them of the danger of these small fistulous openings.

Some time ago the *St. Louis Medical Journal* reported a case of this kind where the dean of a medical college mistook the little protuberance at the outlet of the fistula for a cancer and treated it accordingly, till the parties becoming discouraged by his failures to cure, the case passed to a dentist who extracted the tooth, and "let the cancer get well."

Sometimes in extracting, a root of a tooth is unintentionally, and perhaps unconsciously, left in its socket. When the extraction has been general, and the alveolar processes are absorbed, this root and its alveolus, in contrast with the shrunken portion of the arch, make quite a tumor in appearance. Often the gum heals completely over it. The textures are healthy; but here a hard, unyielding prominence on the bone is discovered. The patient becomes anxious, he consults his family and friends, who see his anxiety "and go better." They become actually alarmed, and communicate their alarm to him. He goes off to a renowned cancer quack, who at once gains the confidence of his new patient by pronouncing it "bone-cancer," just as the victim had expected. He places himself under the care of the c. q., who cauterizes it with chloride of zinc, dissolves it with caustic potash, poisons it with arsenic, and finally burns it with hot irons, till the tortured martyr gives up, pays his bill, and goes home to die. If his constitution has the power to rally after such tortures, he gets well again, as he was at the beginning of the punishment, and

the rascally c. q. gets the credit of curing him. This case is taken from life, and is but little, if at all colored.

We have been told of a serio-comic case of this kind, which occurred less than a thousand miles away. A middle-aged man had his mouth prepared for full artificial dentures. Some months afterward he discovered a small hard tumor on the lower ridge. He was alarmed and showed it to his friends, who advised him to have professional counsel in reference to it, each and all of them recommending Dr. W. With fear and trembling he went to the sanctum of Dr. W., who looked inquiringly into the mouth and then looked wisely at nothing, shook his head gravely and pronounced two monosyllables through his nose. "Is it a cancer, Doctor?" said the frightened patient. "I wish to God it were," said the grave doctor. On inquiring if it could be cured, and finding out the large retaining fee to be paid in advance, and the necessity of getting a substitute in business for an indefinite period, the poor man went to report to his employers the state of affairs. One of these was unwilling to believe the case so serious, and insisted on going with him to his family dentist. This one, as soon as at leisure, looked in the mouth and said there was nothing dangerous. "Can you cure it?" eagerly asked the patient. Without replying the doctor took a root forceps and removed the anterior root of the first molar, which had broken off when the extracting was done. The man paid him a dollar, and resumed his place in the counting-room. Was there a mistake in diagnosis in this case? Or was there a reaching out for a big fee? Let us charitably think the former.

Many times benign tumors on the gums are mistaken for scirrhus or other malignant growths. Miss S., aged 35, had a tumor over the hard palate, a little to the right of the median line, and about the size of a pea, when she first noticed it particularly. It grew till it so filled the mouth that she could scarcely take nourishment. She was several years in the hands of "cancer curers," and finally came to us. The tumor was removed by incision, the operation being almost painless; and the hemorrhage, though brisk at first, was readily controlled by pressure and styptics. An exostosed root of a bicuspid tooth was found at the bottom of the tumor. It would be hard to estimate the degree and amount of mental anxiety to say nothing of the physical

suffering, resulting from the mistaken diagnosis in this case. We have seen several cases very similar to it in their history and outcome.

On the other hand malignant growths may be mistaken for benign. In the winter of 1866 and '67, Mr. — from Kentucky, came to Cincinnati to consult us and the late Prof. James Taylor. A tumor involved the central portion of the superior alveolar ridge, extending as far as to the first bicuspid teeth. We diagnosed the tumor as benign, and removed it, cutting out to the bottom of the sockets. The case progressed nicely, and healed readily and rapidly, except at a point the size of a pin-head. He had this excised by his family physician, but the result was not favorable. In a few months he called on us with well developed cancer of the parts, and beyond the reach of an operation, as we decided, our decision being confirmed by both the eminent surgeons, Prof. Thomas Wood and W. H. Mussey. It is quite probable there were malignant germs when we first saw the case. Even if they were present, it is probable that the operation gave more promise of prolonged life than any other treatment; yet we felt badly over our probable mistake in diagnosis.

When dental science shall have reached the proper degree of cultivation, when the dentist looks at a specimen of dental caries, he will know at a glance the exciting agent, will understand the probable predisposing circumstances, will know whether the decay is progressing rapidly or slowly—in short, he will know a great many things of which he is now ignorant, among these he will know what treatment or course of living is required to break up the tendency to the form of decay existing in the case.

But this was begun for a single paragraph, and has grown to a chapter. We fear, from its length that it lacks in clearness. Feeling that this is probably true, we ask our contributors to take up and handle the subject properly.

MORE LIGHT ON THE GERM THEORY OF DECAY.

THE micro-organists—those who deny that chemical action is the primary factor in dental caries, have tried to claim Dr. Miller, of Berlin, as an advocate of their theory. As Dr. M. was repeating experiments tried by us we had no disquietude as to the

positions he would reach. Besides, we are always willing that truth shall prevail. In reference to the present views of Dr. Miller, we will state that we have just received a private letter from Prof. C. M. Wright, of the Ohio College, Cincinnati, which we use with his consent, which sets them forth so clearly, that we take pleasure in laying it before our readers. It is as follows:

"DEAR DOCTOR WATT:—I have just this morning received a letter from Berlin, from Miller, who says that he is more fully convinced than ever, that 'the first stage of caries consists in a decalcification of the lime of the tooth by acids, which for the greater part are produced in the mouth by fermentation.' He believes, too, that he has at last got the *ferment* 'by the tail.' You know he has all along been misrepresented by many who have not studied his articles, and who simply think it 'the thing' to talk *germ theory*, without study. Miller's views will soon be published. He is a modest, hard-working young fellow, and is winning for himself and for American Dentistry a fine name in Europe.

Yours truly,

C. M. WRIGHT."

We have heard of a zealous advocate of the germ theory who claims "that he substantially agrees with Dr. Miller, the only difference being in the explanation." Two persons agreeing, with a third one, ought not to disagree with each other.

TO OUR CONTRIBUTORS.

THE cool weather, the comet, or some other good influence has stirred up our friends till we are supplied with more copy than we can get into our January number. As we could not use all, we found it hard to decide what to use now. All seemed to be good and timely. So we have mainly taken it in the order of its reception, of course, having to pay some attention to such combinations as the space would allow. We have not aimed to select the best, for, though this is an unusually good number, we wish to have the next one quite as good. It will probably have a larger circulation than this one. Two of our articles in this number are from fathers in the profession. One of them trotted us on his knee in our boyhood, and we revere the words of the aged. With the matter on hand, that we regret we have not room for now,

and with that promised, the prospect is that our next will be quite as good as the present number. And we hope that those who have promised will not forget; for we expect the volume for 1884 to surpass any of its predecessors. Our publishers spare no pains to make the appearance of the JOURNAL as fine as can be. We must see that its matter is worthy of its style.

OBITUARY.

At a meeting of the Dentists in the City of Springfield, O., held at the office of Dr. F. C. Runyam, Tuesday, Oct. 30, 1883, Dr. J. Ramsey was called to the chair.

The chairman announced that the object of the meeting was to take some action in memory of Dr. M. M. Oldham, who died at New Orleans, Saturday morning, Oct. 27, 1883.

On motion, Drs. C. R. Converse, W. H. Smith and L. A. Lewis were appointed a committee to draft resolutions.

The committee on resolutions submitted their report, which was, on motion, received and adopted, viz:

God having called from among us our friend and brother, Dr. M. M. Oldham, while we with humble reverence submit to Him who doeth all things well, it is fitting that we assemble ourselves together to do honor to one who had for so many years honored our profession.

Resolved, That we deeply sympathize with his family and friends in their sore bereavements and tender our heartfelt condolence.

Resolved, That we attend the funeral of our dead brother in a body.

Resolved, That a copy of these resolutions be sent to the family of deceased, and to the daily papers and dentist journals for publication.

C. R. CONVERSE,
W. H. SMITH,
L. A. LEWIS,
Committee.

Our Aftermath.

AN UNFORTUNATE BLUNDER.—A writer in the "Varieties" department of the December number of the OHIO STATE JOURNAL OF DENTAL SCIENCE, gives his readers to understand that the annual meetings of the Mississippi Valley Association of Dentists have been held in dark, gloomy, uncleanly and cheerless rooms on "an abominable alley."

If the author wrote this for the fun of it, he should have given some intimation of the fact; but for aught that appears to the contrary he intended it to be understood as matter of fact. That, accustomed to life in a house on a ten acre lot, in a little town, he should feel pent up in rooms in a closely built city, is not strange; but it is in bad taste for him to give vent to his feelings in this manner.

The Mississippi Valley Dental Association, which for more than a quarter of a century has been the oldest dental society in the world, was organized in 1844, and its annual meetings, with the exception of perhaps two, one in Louisville, and one in St. Louis, have been held in the rooms of the Ohio Dental College, which is situated on a *quiet street*, and is convenient of access. Its rooms are ample, and well lighted, by both daylight and gas; and it affords all requisite accommodations for the meetings of the society, including committee rooms, blackboards, etc.; and all are afforded to the society without cost, except a usual small donation to the janitor. The American Dental Convention, in 1858, perhaps, met in Melodion Hall, but the members could not hear each other, and gladly adjourned to the cheerless rooms on the abominable alley, (?) and were well-pleased with the change.

The American Dental Association met at Hopkins' Hall,—had the use of "bright, cleanly, cheerful rooms, * * on some convenient street," but as it could not transact its business, it adjourned to "an abominable alley," but would have gladly accepted the college rooms had they not been too small.

A large attendance of members at the ensuing meeting is very desirable. It is to be hoped that an excellent programme, ably written papers on the different topics, and well conducted discussions will bring again the pristine interest in its meetings.

Knowing, Mr. Editor, that, for a time you had given up control of the pages devoted to the "Varieties" department, I do not hold you responsible for what I have called "An Unfortunate Blunder," but I hope you will allow space for this, as a matter of justice.

A. B.

Dec. 8th, 1883.

Editor Ohio State Journal of Dental Science:

If you think the accompanying suggestions about filling roots worthy of a place, please insert. My practice for over ten years has been to fill roots (excepting where there is an open foramen) with a thick solution of gutta percha or Hill's stopping in chloroform, carried on a few fibres of prepared cotton. The *rationale* of this treatment, is as follows: Prepared cotton being actively absorbent, takes up intimately the semi-liquid mass and forms with it a hermetical sealing for the foramen. Having become saturated with the gutta percha it will not afterward absorb moisture through either the foramen or the walls

of the root, nor will it in time dissolve, as will os artificiel. I have had almost no failures with this method. The advantages are:

- 1st. Ease of manipulation, (in small canals especially).
- 2d. Certainty of reaching the apex.
- 3d. Insolubility.

I apprehend that cotton wool alone from which the oil has not been removed, would make a good root stopping, (as some have claimed it does in their practice), provided it could always be tightly packed without any recoil. The oil in the cotton is depended upon by those who thus use cotton, to repel moisture. But the presence of oil in ordinary unprepared cotton contraindicates its use as a vehicle for gutta percha in solution. Absorbent cotton, from which all oil has been extracted, should be used.

In all the various descriptions of methods for using gutta percha in roots, I have no recollection of ever having read of the use of absorbent cotton as a vehicle. There may be others who use it, however. There is no filling material that I have yet tried that can be so easily and certainly pushed to the apex of a small root as can gutta percha in solution absorbed by cotton. It works like so much oil. If it should chance to clog, the shred of cotton wool may be readily withdrawn and softened for a second trial.

Ask your readers to try this method on a few extracted roots. For one, I admit that I have found it difficult to force the solution, (without the cotton for a vehicle), into many canals, hence this suggestion to my mind.—F. W. S.

ORIGINAL MAXIMS OF JAMES A. GARFIELD.—Things don't turn up in this world unless somebody turns them up.

Luck is an *ignis fatuus*. You may follow it to ruin, but not to success.

A pound of pluck is worth a ton of luck.

I would rather be beaten in right than succèed in wrong.

If the power to do hard work is not a talent, it is the best possible substitute for it.

Poets may be born, but success is made.

If there be one thing upon this earth that mankind love and admire better than another, it is a brave man—a man who dares to look the devil in the face, and tell him he is a devil.

Be fit for more than the one thing you are now doing.

The privilege of being a young man is a great privilege, and the privilege of growing to be an independent man, in middle life, is a greater.

Territory is but the body of a nation. The people who inhabit its hills and its valleys are its soil, its spirit, and its life.

I would rather be defeated than make capital out of my religion.

PATIENTS are often much annoyed by neuralgia after roots of dead teeth have been stopped or treated. This may often be relieved or arrested by

R Tinct. Aconite..... .gtts 5.

Tinct. Gelseminam..... " 10.

Aqua..... ʒ iv.

Sig. Teaspoonful every hour.

A FREAK OF NATURE—

When the doctor saves a life we appreciate his skill,
 But appreciations vanish when he presents his bill.
 Tho' bills of other business men are paid without delay,
 When once a year the doctor's come we tell him, "not to-day."
 We have the money with us, and can pay as well as not,
 But the bill goes in our pocket, where it is soon forgot.
 Why is it we expect so much from men so free to give,
 Forgetting they are mortal, and like us must eat and live?
 The treatment of dentists' bills is beyond the expression of poetry.

WANTED—Fresh air in churches. Ventilate, O ye sextons! Many of our sanctuaries are like to the church in which Dudley Warner says that he attempted to worship, and of which he testifies that "the reproduction of the old Gothic is so complete that the builders even seem to have brought over the ancient air from one of the churches of the middle ages. You would declare it hadn't changed in two centuries." Take a hint from the above and ventilate your offices.—ED.

FETID FEET.—A prompt remedy for this disgusting affection is found in washing the feet with a solution of chloral (one part of chloral in one hundred parts of water), and keeping them enveloped in compresses wet with the same. Another efficacious method is to powder the interior of the socks with a powder composed of one part of salicylic acid and five of starch. Dentists are so constantly standing we think their feet must suffer, and we hope the above will help them.—ED. AFTERMATH.

It would seem, judging from the followings facts (*Brit. Med. Journal*, December 26, 1874), that the pursuit of science is not injurious to health. From the roll of the Royal Society, the total number of deaths for one year, ending November 30th, 1874, was fourteen. Of these, three were under seventy years; five were between seventy and eighty; five between eighty and ninety, and one ninety years. These are remarkable facts, worthy of a more extended consideration.

"LEARNING is the last and least part of education. One grain of living faith is of more value than a hundred-weight of mere historical knowledge; one drop of true love is worth more than an ocean of learning in all the mysteries."

"LET well enough alone" is a command addressed to our inertia and not to our sense of duty. If our work could be better, it is not well enough and should not be let alone. Two principles in human nature reign.

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"A word fitly spoken is like apples of gold."—SOLOMON.

ARE WE PROFESSIONAL MEN?

BY FRANK W. SAGE, D.D.S., CINCINNATI, OHIO.

THIS is an age of professors. Musicians, elocutionists, mesmerists, ventriloquists, acrobats, horse-doctors, and other specialists of all grades, adopt the prefix, Professor, and their presumption meets with no very clamorous protest from the public after all. The public, we suspect, is too deeply absorbed in its own affairs to care very much about it either way. Good natured enough about such matters it seems to be, and impartial; possibly it sometimes laughs (rather irreverently at the differences which arise occasionally between the bearers of regularly conferred titles and their vain-glorious imitators. That is not saying, however, that the public has no eyes, and holds no well-defined opinions about professional men. But in this age of active competition, the claims of all classes of men to peculiar distinction on any ground

whatsoever, are subjected to rigid scrutiny, and pretensions to exclusiveness require very substantial backing indeed to stand against the leveling tendencies of our democratic institutions. Possibly the impression has got abroad that titles are cheap, and of less significance than formerly. Upon what ground? the reader may ask. Let us see. In every considerable community how many "doctors" will you find who are out of the profession? How many "judges" who were long ago superseded on the bench? How many "honorable" without a constituency? It costs no special effort to call a man judge, or doctor; on the contrary it saves the trouble of recalling names, and the public is usually indulgent towards harmless vanity when it comes to that consideration. But to enable us to form some idea of the real estimation in which these and kindred titles are popularly held, will some judge or doctor be bold enough to step forward and openly challenge the throngs of non-professionals with whom he is in daily intercourse, to compare their claims to popular consideration with his. "Why, my dear sir," says the bank cashier, "your equals by birth and education crowd around you on all hands. Are you my superior by virtue of your having devoted years to the mastery of your profession? Look at me, then, since you invite comparison. Am not I in turn your superior by virtue of a course of training equally as severe, by which I have mastered the intricacies of banking? I admit that it would take me years to reach your level in your profession; but do you imagine that you could fill my position acceptably without arduous preparation for the peculiar duties of the place?"

Next comes the accountant, and then the architect, and the contractor, and the builder, and after all have spoken, the challenger will have discovered that he is only one of an army of specialists. If he is wise he will readily infer that the day has passed when the public may be easily overawed by an assumption of dignity not commensurate with real ability, while at the same time he will discover that never has there been a more hearty appreciation and respect for genuine capacity in men who wear professional titles. If he hears of derision being heaped upon the professions, he may rest easy under the assurance that it is directed not at the professions, but rather at unworthy wearers of the professions' titles. The public means to be fair even though it does not always appear to carefully discriminate.

Does some one interrupt me here to exclaim, "Why, do you mean then to rate dentists with cashiers, and accountants, and the rest you have mentioned—men who make no pretension of being professional men?" No indeed. The writer rates dentists as a distinctively professional class, if you want to know in advance his private opinion on that head. What he wants to inquire into particularly, is how the *public* rates them; what it is that creates and fosters that indefinable sentiment by which professional men come to be distinguished as such, and what are the requisites already possessed, as well as those at present lacking, to confirm our claim as dentists to a professional standing. No man with his eyes and ears open can have failed to discover that at present there is no such universal and unanimous recognition of the dentist's right to the title he assumes, as obtains in the case of physicians. The man who "misters" his dentist to-day, and "doctors" him to-morrow, may mean no deliberate disrespect, but he apparently betrays a lack of information, or else misgivings as to the dentist's claim to be called a doctor. That, however, need concern the dentist less than the question how he may convince the public, by the importance of the service he renders, by his skill in managing difficult cases, and by his not bungling in simple cases, that he is a student not merely of the art but also of the science of dentistry. Society has always been conservative, slow to recognize even well-attested claims. The world's greatest discoverers, inventors, organizers, have suffered in fortune and in happiness, not in spite of but through the instrumentality of the very truths by the establishment of which they have immortalized themselves.

But some, of an envious disposition, openly question our right to the term "professional," on the ground that we follow a pursuit largely mechanical in its nature. Let us examine into the matter. If it comes to the question of Webster's or Worcester's definition of the word "profession," we remark that the value and authority of definitions is derived from established usage, and that dictionaries are revised as words lose or change their significance, or become obsolete. Setting aside for the present the definitions of the bookmakers, is not the popular idea of a professional man something like this; one who ministers to conditions of physical infirmity, (i. e., the physician, the surgeon, the dentist,) or who officiates in matters of jurisprudence, or who minis-

ters in spiritual things, or who follows a vocation allied to art in contradistinction to such as are connected with trade! It is safe, we think, to predict that an appeal to the revisers of our dictionaries, would to-day, establish the claim of the dentist. For, reasoning by analogy, we cannot see why the dentist is any less a professional man than the physician. The latter, with his lancet and his needles, his sutures and his bandages, operates to relieve, regulate and correct abnormal conditions. The dentist, with his excavators and his broaches, his regulating-plates and his forceps, does the same thing. The physician, with his caustics and his anodynes, his cathartics and his emetics, assist nature to throw off the incubus of disease. Does not the dentist do the same things, by means similarly adapted to the end in view?

The dentist ministers to the relief of diseased conditions, not occasionally but constantly, and that too in the same literal sense in which the physician or the surgeon does the same service. What single service does the dentist perform (not excepting even the collecting of his fees) which is not directed to the relief of suffering humanity? How is he any less a professional man than the surgeon? If the service rendered by the latter, consisting simply of the use of the knife for five minutes, is a professional service, why is not the capping of a pulp and the inserting of a filling equally a professional service, albeit the operation requires five hours of the dentist's time?

But if a distinction still be insisted upon, on the ground that dentists are occupied mainly in a mechanical way, employing medicine as an occasional auxiliary, what should be said of the surgeon, who courts the distinction of a specialist in the use of the knife, saw and tourniquet, leaving to the physician the after management of the patient?

The common-sense conclusion of the whole matter is that the dentist who shows himself competent to perform all the services for which application to him *as a dentist* is made, is entitled to rank with professional men. He will not need to assert the claim, either; it will be voluntarily accorded him by intelligent and appreciative patrons. Whether or not it is of advantage to the dentist to attempt to cover the entire field of medical science, in pursuing his studies, is still in debate. A well known writer and thinker of this day says: "The day of universal scholars is past." * * * "A great deal of the wisdom of a man in this

century is shown in leaving many things unknown." * * *
"He who would know one thing well must have the courage to be ignorant of a thousand other things, however attractive."

Why should the dentist be required to know how to cure dropsy, and malaria, and diphtheria? and why should he not then include a knowledge of blight and potato-rot? There is still much to learn by induction; it is perhaps too early to claim that the further development of dental science depends upon the question whether dentists will devote themselves to the mastery of medical science in order that they may employ the more liberal processes of deduction.

Medical science was built up from its earliest days by processes of induction, and no one can say when the deductive processes of reasoning and investigating began, for the reason that the two processes have always been mutually dependent. The time may not be far off when the dentist will feel constrained to cry, I can investigate no further until I have studied medical science from its elementary principles to its broadest developments. I have reached out in all directions until my researches have led me to the confines of unfamiliar fields, and I cannot hope to locate the hidden treasure I seek, unless I make myself familiar with the surveys which others have made, and avail myself of the accumulated knowledge of ages, a knowledge which includes in its general scope the specific information for which I blindly grope.

Is dentistry then to be merged into medicine? By no means. In its very nature it is and must be a distinct science, perfected, perhaps, by its dependence upon the mother science, but distinct in its aims and offices to a greater degree than ophthalmology and otology.

But to what end should the dentist pursue the study of diseases, in detail, further than to acquaint himself with the features by which they may be distinguished, in order that he may refer the patient to his physician, as does the oculist and the aurist?

But why argue further on this question of the dentist's professional claims, since many will say that when it comes to allowing or disallowing his pretensions, public sentiment is influenced to no inconsiderable extent by the manners and address of the individual? It measures its respect for the man by the man's respect for himself. Not far from the truth, we suspect. It is a

mere matter of assumption, backed by assurance and a plausible exterior. What does it signify? Men laugh in their sleeves at men of undoubted attainments, and doff their hats to others notoriously incompetent, calling both "doctor." What care you for the public's opinion of your profession, so long as you know it regards *you* favorably? Look out for number one. Keep neck and neck with your fellows in society, and you will be a successful man. What more do you want?

Is it then true that respect for a man's professional pretensions is dependent upon such ulterior considerations? In a certain sense, yes. Look at men in the other professions. Lawyers, clergymen, physicians, assume the right, by virtue of their high calling, to live among gentlemen, after the manner of gentlemen, to dress well, furnish their own houses, entertain their friends, educate their children, run for office, cultivate the amenities of life generally. Of course all this presupposes a liberal income derived from their professional labors. How do they command such incomes? By placing a high estimate upon their services as *professional* services. How is it that the lawyers can charge and collect ten dollars for drafting a legal paper which he executes in as many minutes? It is because he takes advantage of the fact that he knows how to do it in such a way that his client will be perfectly secure in his rights; it is because he takes advantage of his client's implicit confidence in his infallibility; it is because he thinks that client will trust no other lawyer to do it for him, although he knows he can get it done cheaper. Why is it that the surgeon is able to collect fifty dollars or three hundred dollars for an operation? It is because he knows how inestimably valuable to his patient is that service. People stand in awe of him and regard his skill with dread fascination, because they regard it as exceptional. Admiration, if not gratitude, shames a niggardly spirit, and the fee is paid without a thought of protest. Does the lawyer or does the surgeon deserve a liberal fee? Why not? Both have saved their patrons from disaster. The surgeon has habituated himself to the performance of frightful duties, has inured himself to the sight of suffering, the smell of blood, the handling of loathsome sores. Would you ask him to accept a wood-chopper's wages for his professional services? Would you ask him to reduce his style of living in order that he may afford to reduce his fees?

Who works harder or performs more disagreeable service than the dentist, or who exhausts his nervous force for the good of his patrons, as does the dentist? Has he not a right to expect to live on a more liberal scale than does the day laborer? Yet if the pleas of some of his patients were to be regarded, he would be compelled to live in a garret. A dentist has a right to feel indignant when his patient produces pencil and paper, inquires the cost price of the materials used, and figures out a fee to suit his own idea of adequate compensation. There are a few people in this world who are capable of such assurance. "What are your charges for gold fillings, Mister?" asked a countryman of a certain eccentric dentist in an inland town. "Nothing, sir, nothing at all,—for the *fillings*. For the sweat, swearing, slobber and slop, I charge according to circumstances." Rather a rude answer, you will say, and decidedly a vulgar man. True enough. But then he owned a block of houses, and had a bank account, which possibly he would not have had but for his knowing how to answer certain people. The countryman, who had come to "strike a bargain," went elsewhere, and the dentist lost a "job," just as he had intended to do. Many people place a low estimate on a dentist's services, who, if asked to perform for him in turn a similar service, would shrink aghast from the proposition. But who is too blame if the dentist is sometimes underpaid? No one, assuredly, but himself. For who is to decide if not he himself what the fee shall be? The dentist who charges for plate-work at so much per tooth, without regard to the peculiarities or difficulties of the case, or who lays out just so many strips of foil to offset the amount of his patient's small change, bids fair always to rank among the *artisans* of the community, and may rely upon attracting the attention of all the "shoppers." Sooner or later he will have a rival over the way, who, by crediting his patients with the value of the filings saved after finishing, will reduce him to the extremity of saving up his worn-out rubber-dam to be presented to his patrons' children. This style of prize-package professionalism is occasionally met with even at this day. These men probably never stop to consider in the ardor of their devotion to the service of the public, that they are liable to a suspicion of stinting themselves in the use of the best resources of dental art. What wonder is it that our profession is by many regarded as a mere handicraft, when men in our ranks hire out by the job

at any price to suit the employer, and measure the value of their professional services with a tape-line!

But bless our heart! We are wandering off to the subject of fees, and nobody now-a-days ever talks openly about fees,—excepting to patients. We never hear about fees in our conventions. We suspect that a considerable degree of moral courage would be required to enable any man to rise in a deliberative assembly, like the American Dental Association, and broach the subject of fees.

However, we won't scratch a line of what we have written, for we have a secret conviction which we have not time now to analyze, that it has a legitimate relation to the main subject under consideration after all.

"What arrant nonsense is all this talk about professionalism?" some outsider exclaims. "You dentists professional men? Stuff! I go to my dentist—to *any* dentist, as it happens—to get a tooth jerked, just as I go to a barber to get my hair cut. He takes my measure for a set of teeth, just as my tailor takes my measure for a suit of clothes. If the suit does n't fit I leave it on my tailor's hands, and just so I serve my dentist if he doesn't give me satisfaction."

Exactly. In like manner, we doubt not, you serve your doctor, if he fails to cure you, and your lawyer, if he fails to win your case. But is your doctor or is your lawyer any less a professional man because you choose to defraud him? Why don't you go to your barber to have your tooth pulled? He makes that a part of his business. You know why. It is because you have been informed that dentists make a study of the teeth, their anatomy, their individual peculiarities, etc., and that they are provided with such appliances as will more certainly insure a successful operation. It is because you believe your dentist exercises a skill derived from his knowledge of the parts upon which he operates, so that you feel assured that you will not be maimed nor subject to needless barbarity. You feel more confidence in the dentist because perhaps you recall a former experience, when you tried creosote, and camphor, and what-not, (at your barber's suggestion) and having failed to relieve your toothache, you applied to the dentist, who ran a wire up into the tooth about an inch until he struck the "nerve," and—and so on. Exactly what else he did you do not know, nor could you very well understand

if it were explained to you, how he managed to use so effectively the very remedies which failed in your hands; you could not understand because you have no knowledge of anatomy and histology and pathology, and materia medica—nor has your barber. With you, toothache is toothache, and that is as far as you have investigated the matter, excepting that you have discovered, incidentally, that toothache and forceps somehow stand in a reciprocal relation, the one to the other. Go to; you are not competent to sit in judgment upon this question.

But as to the dentists' social relations, we wish to say a word. The labor and effort that is being put forth to elevate the profession, as a profession, will fail in one important requisite, unless newcomers into our ranks perceive, by the examples of those who have preceded them, that to command respect as a member of a profession, a man needs to command respect socially. What gives the physician the *entrée* of society? Is it not the fact that his relations to his patrons are of so intimate and confidential a nature as to engender feelings of sympathetic fellowship and familiarity?

The dentist has himself alone to blame, if he fails to improve like opportunities. At this day, when education is becoming so generally diffused, there is no reason why dentists should not rank well, socially. If a dentist is all dentist and nothing else, he may inspire confidence in his patrons, but hardly a full measure of respect, as a man. So also of the lawyer and the physician. These considerations may not be ignored, for they certainly have a bearing upon the question of the further advancement of the profession. Still, there remains much to be corrected which is independent of all these considerations. This one occasion for regret arises. It is not merely that our ranks are degraded by a multitude of men who care nothing for dental science, so long as they are possessed of sufficient dexterity to practice the art, after a fashion; it is that not a few who are better qualified, who render really efficient service to their patrons, show so little interest in anything concerning dental science which does not directly pertain to the use of excavators and pluggers.

But why should we set ourselves up to judge others? Some men are by nature imitators, others invent, some (with honest intentions) practice empirically, others use remedies in accordance

with recognized principles, some rely upon precedent, solely, others are guided by intelligent deductions drawn from the results of reading and reflection. We are not all alike, nor could we be so if we wished it. But we *can* unite to secure for ourselves, as a *body collective*, (not on the merits and renown of individuals here and there), a reputation farther extending and more universal than we have hitherto enjoyed, as professional men. If it be admitted that the time is near at hand when our profession will feel constrained to sit at the feet of its older sister profession to learn from her what our resources cannot supply, the achievements of the past are still a sufficient assurance that the time will never come when necessity will compel us either to beg or borrow her honors.

THE HERBST METHOD OF FILLING WITH GOLD.

TRANSLATED BY G. V. BLACK, D. D. S.

[From the proceedings of the Zahnartzlicher Vereine zu Frankfurt am Main, May 26th and 27th, 1883.]

HERR HERBST, introduced No. 1 of his demonstrations (in gold filling), with the remark that he was thoroughly convinced that his method would have a great future; and that when it was once rightly understood, it would displace other methods; a thought in which others present—Herr Koch, Giessen, and Dr. Nicoli, Stuttgart,—concurred, they having become acquainted with his plans of manipulation.

Herr Herbst remarked further, that the news of his method of filling had already outstepped the borders of Germany, and was attracting attention in foreign lands, as numerous letters to him show. Even in America his method was being inquired after, and letters had come to him in which the wish was expressed that they might have more intimate communication with Germany, and that our periodicals were read with much interest. One dentist from there (America) had written him, saying, that if the method (Herbst's) should prove practicable, it will displace the old, and gain the thanks of the profession.

HERR KOCH mentioned the visit of an American dentist, Dr. Standinger, from Pennsylvania, who spoke in the highest terms of praise of Herbst's new method.

HERR HERBST thanked him for the remark. Such had come to him from every side since the publication of his method.

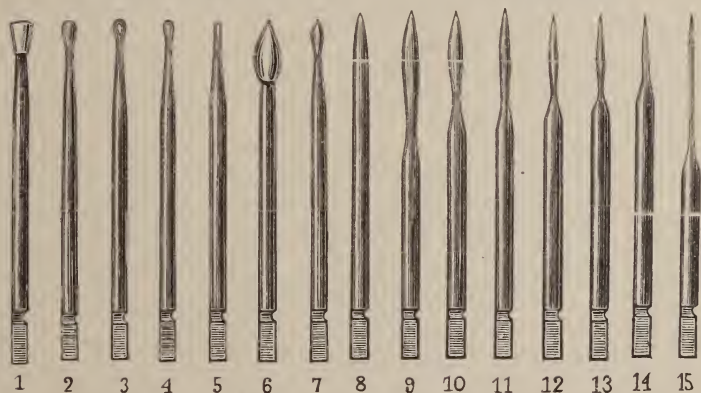
We will now allow Herr Herbst himself to speak: "We will here in Frankfort examine closely my method and learn whether or not it is practical. I will now fill one crown cavity, two approximal cavities in central incisors, and make two contour fillings before your eyes. I will make all these fillings in the hand, and afterward we will split the teeth so that you may judge of their inner worth, especially that you may see how sharply they have fitted to the walls of the cavity, and be convinced as to their solidity.

"I have already shown you the instruments for my method of filling. They may now be purchased at any of the dental dépôts. The firm of Ash & Sons have sent me a set of instruments with which I shall operate to-day. They are very perfect copies of the original. In order that I may be better understood, I will distinguish them by the same numbers that have been given them in the *Correspondence-Blatt*, (in which they are illustrated.)

INSTRUMENTE ZUM GOLDFULLEN

System Herbst.

(Siehe Correspondenzblatt f. Z. Heft III, Seite 227.)



Preis per Stuck Mk. 1.—.

"The principal instrument is No. 5, of which several sizes—or different thicknesses—should be had. They may be made easily from a broken drill or bur, thus: Take the broken instrument, and, without drawing the temper, place it in the hand piece of the dental engine, which is put in motion, and the point ground upon a dry oil stone to a very short point, roof-form, (Dachformig) to nearly flat, (on the point) but not so flat that a point may not be

discerned in the centre. I learned the value of this instrument after the meeting in Frankfort last year. The use of the other instruments have been described. Numbers 1, 2, 3 and 4 are partly for the beginning of large fillings—the fixing of the first layers of gold—but especially for the smoothing of the otherwise finished filling.

“We must thank Herr Nicoli, Stuttgart, who is known as an earnest advocate of my method, for the knowledge that these four instruments are splendid for use in amalgam filling. The numbers from 7 to 15 are more important, especially No. 15, which is a sewing needle soldered into a shaft. These instruments are used for approximal fillings. Nos. 6, 7 and 8 are occasionally used in other fillings. In this, as in all other methods, no positive rules can be given, yet I will try to make it as clear as possible. I have used, for some time past, Car Wolrad's (Bremen) make of gold for my purposes, and this only, for the reason that I can always get it fresh, so I do not anneal it, at least not until the last layers are reached in large contour and crown fillings. Those of you who have your gold on hand for some time, perhaps, would do well to heat it on a piece of mica, but not to a red heat. I do not think the success of my method depends upon the make of gold used, but of this I cannot say positively. The Wolrad gold is certainly first class and enjoys a fine reputation.

“I will now undertake a pretty large crown filling. In large fillings like this, I may use instruments No. 2, 3, or 4, but especially No. 5, the first in beginning and in finishing, the last for building the filling. I take now 2, 3, 4, or more gold cylinders, No. 1, 2, or 3, according to the size of the cavity, press these in beside each other, on the bottom of the cavity, with the foil pliers. Then with the instrument No. 2, 3, or 4, with a rather slow rotation, I condense the gold as solidly as possible. If the gold does not keep its place perfectly, I press in a few more cylinders with the pliers or a plugger, and repeat the pressure with the rotating instrument as before. Now for the building of the filling I will use No. 5 alone. The point is *not polished*, but ground on an oil or Arkansas stone. The surface of the foundation of my filling is polished, and seems to be solid. You will see, however, when I bring this instrument, (No. 5) to bear upon it, that it is compressed enormously. It must not be supposed that

I use much force. This instrument is worked with very rapid rotation. It works either with the point by direct pressure, or with the side by lateral pressure. It is ground, as we said, to a blunt (*Dachformig*, i. e., roof-form) point, and in large fillings should not be too small, otherwise you will only press holes in your gold. The machine goes rapidly, and the point must not be kept too steadily against the gold. If it be held too long on one point the tooth will become very hot. It should be a heavy tapping (*Betupfen*) over the whole surface of the gold.

“Now if you will examine the foundation of the filling closely you will see that it is very much condensed, and the surface, which before was brilliant from the polished instruments, has become dull, and the point of this instrument is gilded. The entire surface of the gold is now splendidly cohesive. You can build upon it rapidly. I take now 3, 4 or more gold cylinders, as before. These are pressed fast and then worked down with instrument No. 5, as before. The building of the filling now goes forward rapidly and safely. When the cavity is full you may, with plugger, excavator, etc., convince yourself of its solidity, and especially of the perfect adaptation of the gold to the borders of the cavity. If all is found perfect we may go over the whole surface with instrument No. 1, 4 or 7, as may be most convenient, the instrument rotating. Finally the filling is to be ground down and polished; but now I will split the tooth in order that you may carefully examine the filling. It should now show the inner walls and margins of the cavity, and every slight unevenness perfectly sharp; also you may destroy the filling itself, in order to see if it be solid. You see that no one layer can be divided from another; the gold is as solid as if cast.”

(Those present convinced themselves of the perfection of the filling.)

“Now I will undertake the two fillings between the central incisors. Such cavities as these we have to handle every day. I never drill retaining pits, neither do I make deep undercuts, but form my cavity so that the inside is larger than the entrance. In this plan of filling it is especially necessary that the parts most difficult of access be filled first. This is the posterior part or wall of cavity, especially that part toward the gum. In incisors if we fail to reach this part perfectly, we must make the filling from the inner side. As I need but very little room in my method, I

never use rubber between the teeth for the purpose of separating; at most I use only a little cotton. If the teeth are very close against each other, I usually press them apart with very thin spatula-like instruments, and then hold them with little pieces of wood placed near the gum; or, when I see that the approximal surfaces are so decayed as to break with the pressure, I separate with the diamond disk. I need only enough room to use my thin celluloid disk or to draw through a strip of sand paper.

"I will now make the two fillings. In filling approximal cavities, I usually use cylinders No. 2 and 3, No. 4 only in very small cavities, or to fill out uneven points in finishing the surface. When there are two fillings to be made as in this case, I make them both at once. I take now two or three cylinders, No. 2, and press them into the first tooth, and again two or three cylinders, No. 2, in the second tooth; in each case pressing them in above and below and toward the lingual surface,—press them firmly into place and use instrument No. 5 to condense the gold and render its surface cohesive to receive the next layer. These two cavities we now build up as we did the crown filling. The instrument (No. 5) is rotated rapidly with intermittent pressure, and is by this means gilded. The surface of the gold handled in this way is adhesive. Now I take again two or three cylinders for each cavity and repeat the manipulation with instrument No. 5. This is repeated until the cavities are overfull, so that the two fillings are apparently joined together. Now I will use instrument No. 15, it is a smooth clean sewing needle. I set the point on where the two fillings join each other, and with a slow rotation and steady pressure, the needle is passed through between the fillings, first near the gum then near the cutting edge, and then in the middle. Now you see three round holes passing through from front to rear. The remaining space is to be opened in the same way. In case the fillings cannot be separated completely in this way, they may be filed apart with a fine separating file. In case the surface of the fillings need further condensation, we would use No. 12 and 14 with intermittent pressure and rapid rotation. The No. 6 and 12 I use when teeth stand wide apart and about the margins of the cavity. Now before I remove the coffer-dam, I will grind the fillings smooth with a strip of sand paper, and remove the debris with the air blast and cotton, and examine the margins of the fillings to see if they please me in

every part. If I find imperfections, it is easy to make them good before moisture is admitted. If all is found right, I remove the coffer-dam and finish the fillings in the usual way. We will now split these teeth that you may examine them."

(These fillings were pronounced excellent.)

"Now I come to No. 3; contour fillings. My friend, Dr. Nicoli, made the first contour fillings after my method. He asked me during the last year how I got along with contour fillings; I answered that I made no contour fillings, on the contrary I sloped off (*Abgeschrägt*) all my fillings, and held that to be sufficient. Dr. Nicoli said he made all gold fillings by my method to his entire satisfaction, and especially the contour fillings. As I had no special interest in contour fillings I troubled myself no further about the matter. I sloped off my fillings as before until my brother George returned from America and said to me that the method was incomplete, and would never gain the respect of the profession if I could not use it for contour fillings. That I have succeeded in doing this I will now show you. I will fill two small bicuspid; I have chosen these because, in practice, they are the most difficult teeth to fill. They are placed in plaster of paris, in the position they would occupy in the mouth. Both of them have large defects; one extends from the gum half over the crown. In order to fill such teeth as these I first, after excavating, build a wall to fill against. More recently I do this very easily, using a bit of watch spring, or the smooth end of a separating file. This wall (matrix) should not be more than two-thirds or three-fourths as high as the filling to be made, in order that the approach to the cavity shall not be rendered difficult. I will now begin. After I have put on the coffer-dam and excavated the cavity—I always excavate dry because the tooth is less sensitive, and because in case of great sensitiveness, remedies, such as pink oil, spirits of ammonia, chloroform, etc., can be applied to a better advantage. When the tooth is excavated and the cavity properly formed, I take a piece of a watch spring and fasten it in position, or, when it may be used, the ring and claw, (*Loup Matrices*) such as may be had in the trade. To-day I will use the pieces of watch spring. Now it is absolutely necessary that this artificial wall of steel be fixed so that it will not move. I bend the pieces of watch spring in a half moon form, and press the concave side against the tooth, and fix it in position by wooden

wedges driven both from the buccal and lingual surfaces. Now I fill the cavity of the other tooth tightly with cotton; this will assist in supporting the matrix. Now when convinced that the matrix stands solidly in place, it will be seen that we have a cavity very much like a crown cavity, and one that may be filled much in the same way. We should be very careful to fill solidly against the matrix, and very especially must we be careful that our filling be perfect along the walls of the cavity next the gum, and that the first layers of gold be perfectly condensed.

"In contour fillings, I use only the simplest instruments, namely, No. 5 alone,—only in the finish do I use a polisher. You see that I build the entire filling as I would a crown filling. I have here different sizes or thicknesses of No. 5. The thicker points I use first, and then the lighter ones about the margins of the cavity in order to be sure to obtain perfect adaptation of the gold to the cavity's wall. Perhaps it would be well to use annealed gold about the margins and in the finishing, as it will probably become harder. The rotation of the instrument should always be rapid, and with a light tapping movement go over the entire surface of the gold. In places that cannot be reached with the rotating instrument (which, of course, is always straight), we must naturally help out with an ordinary plugger. After the cavity is filled, the cotton, the wedges, and the matrix are removed. Now we should convince ourselves of the solidity and perfection of the gold, before moisture come in contact with it, in order that any imperfections may be filled out; with me, the rule is that this is not necessary. After I have condensed the gold over the margins of the cavity with instrument No. 7, I fill the second cavity in the same manner as the first. We should always be very careful that no gold is left overhanging the border of the cavity next the gum. I can make two such fillings as these in about one hour.

"Now since I have made in the hand before your eyes the principal fillings which come to us in practice; and you, my colleagues, have convinced yourselves of the outer and inner perfection of them, I must yet show you that this method is just as good in the mouth, both for the patient and the operator, and that it has a great advantage over other methods of gold filling. To this end, my brother has come here with me, and I will make two very large courtour gold fillings in his mouth. This will

also give me the opportunity to show you the safety of my new claws, (for the coffer-dam) and the splendid working of my polishing apparatus. Of both I will speak later, and show you their application.

"I have prepared the cavities at home. You will see that the plan will work more safely and rapidly in the mouth than in the hand. I will fill these teeth in the same way, and with the same instruments as those I have filled in the hand. Now I beg of you, gentlemen, that you do not withhold your judgment, but in the interest of our specialty, speak out your minds freely; and especially if you have discovered faults. Your silence would be an injury. But if all is good, my greatest wish will be fulfilled; and if you should see fit to make my method your own, I could only rejoice. I appreciate the fact that by once being shown all of this cannot well be learned; and I will, in November or December, or other time that may be more convenient, give a free course of six or eight days in Bremen or elsewhere, and make a specialty of my method of filling." * * * * *

THE NATURE OF DENTISTRY.

BY DR. STEWART J. SPENCE, SAN FRANCISCO.

AN erroneous conception of the *nature* of things leads to erroneous treatment of them. From what I can glean of promiscuous reading of dental literature, I fear that the mind of the profession is drifting into an erroneous conception of *the nature of dentistry*: drifting, in fact, out of the real and practical into the theoretical; out of the shallow waters of the coast where lies its traffic into seas beyond its depth. And if this be so, it requires no inspiration to prophesy that the results will be as with "vaulting ambition, which o'erleaps itself and falls on the other side."

What is man? "Man is a tool-using animal." And in this is seen his superiority to other animals. What is a dentist? A dentist is a tool-using man, *essentially so*, and in proportion as this ability is developed is one dentist superior to another. *Dentistry is radically and essentially mechanical.* Its five great operations are the cleaning, filling, regulating, extraction, and artificial replacement of teeth; and in each of these operations tools

are (ordinarily) a necessity, and, therefore, they are mechanical operations. Without his instruments, a dentist would be almost as impotent for good as an ourang-outang. It would be impossible for him to succeed without tools. It would not be *impossible* for him to succeed without drugs. It would not be impossible for him to succeed without an extended knowledge of anatomy. I repeat, therefore, that dentistry is, by nature a mechanical pursuit, and any attempt to name it otherwise is to calculate from a false basis.

Who would deny that the operation of building a house is essentially mechanical? And yet there is a striking resemblance between building a house and building a filling in a tooth. But on the other hand, there is *not* a resemblance between the operation of filling a tooth and that of removing a cancer or a limb. In the latter case there are muscles, nerves and arteries to be divided or pressed aside, the acquaintance with which requires a large amount of previous study, and, in the operation, the majority of labor is done by the brain and not by the knife. In paying his bill the patient realizes that he is paying for brain-work, and this reconciles him to high charges. Yet behold, the mechanic who has forsaken house building and betaken himself to tooth-carpentering is a *surgeon*, as soon as he has stuffed a little gold in a hole of a tooth. A dental surgeon! He belongs now to a scientific profession, and scarcely remembers his old companions when he meets them on the street. He has learned to ignore the very word "mechanical," and to regard the strictly practical as something to be criticised from a high stand-point. The vulgarly practical man who goes to a dental college to learn how properly to fill natural teeth and insert artificial ones, and does not go to acquire information concerning the dentures of antediluvian monsters, nor yet of the nerves in the human toe, is regarded as below the notch of professional dignity; and yet this coarsely practical fellow may, realizing that

"Life can little else supply
Than just to look around us and to die,"

devote himself so thoroughly to that which his hand findeth to do (or rather to that line of study bearing chiefly on that which, when in practice, his hands will find to do), that, eventually, he will have so far surpassed his theoretical fellow-student as a

mechanic that the most learned of us would rather visit his office to have an operation performed, even though he could not tell us the location of the *os coccyæ*, than go to his theoretical rival. The one realized the nature of dentistry, the other mistook it. The one saw in it an essentially mechanical pursuit, the other imagined it was something of a different nature away up somewhere. The one believed that dentistry is (metaphorically speaking) walking on the earth, the other fancied it is flying. Dentistry was to the one real, to the other ideal. Dentistry is not poetry, nor mathematics, nor (properly) surgery: *essentially* it is mechanical.

But while the mechanical is the essential element of dentistry, it is not, therefore, the only one. A prescription usually has a principal element, but several others of minor importance, and so with dentistry. But the prescription takes its nature from the principal component, not from the minor drugs or the sweetening syrup, and so with dentistry. While it takes its nature from its tool-using element, it also has other elements, medicine, surgery, etc., and even mathematics and poetry may find a place in the mind of the thoroughly educated dentist, and there can be no possible objection to the dental student studying all these branches *if they do not detract from the study of the essential portions*. But that "*if*." If the dental curriculum covered a term of ten or fifteen, instead of two to four years, there would be good reason for insisting on a full acquaintance with all those studies which would in any way throw light upon the dentist's path; but as the average of human life is below forty years, there is little time to be spent in acquiring an education, and it becomes urgent upon every one, when he starts out in life, to know on what route he will travel and provide himself for *that* journey, and not for a dozen others which he never expects to make.

The secret of success in any effort is *concentration*. The ability to concentrate thought is markedly absent in the idiotic; it is highly developed in great minds. This is an age in which if a man would accomplish anything notable he must do it in a narrow circle—in a specialty. Diffusive minds miss the mark; power lies in focalization. Diffusive teaching does not fit a man for anything in particular. *In proportion as study is concentrated upon a single object, that object unfolds its intricacy, and constantly develops fresh fields for research*. We have heard of a celebrated Greek scholar who started in life to study the Greek

article, but lamented on his death-bed that he had engaged too wide a field, and should have confined himself to a single portion of it. That man will succeed in life who can *do any one thing really well*, even if it is only making coffee. If he can make the best coffee in town, he has a fortune at his beck. He has grasped the substance, not the shadow; and his knowledge of his specialty is of far more value to him than that he should be able to cook indifferently well a hundred dishes, and know a little about half the meats of the world. We often meet men who can speak six or seven languages, and cannot earn a living by one.

We have heard it complained that the recent dental graduate is unfit to perform the simple operations of an office practice. *Concentration of study is the only salvation for dentistry.* If the student were expecting to become an odontologist, a dental scientist, or an experimenter, it would be well for him to learn all about anatomy, histology, materia medica, etc., *and to devote sufficient time to their study*; but if he purposes to become a successful practitioner, his mind should concentrate upon the essential and the practical. In the single field of prosthetic dentistry alone, there is enough to occupy a student for the three years. It is a subject which will increase in magnitude, to his view, as he draws nearer to it. There are ever occurring problems in it which will call forth all his powers of constructiveness, patience and ideality. As he begins to tread its fields he fancies that in a few weeks he will have explored them, but as he advances they open up to him afresh at every turn, widen out and develop variety of scenery, such as he finds he has not fully explored after ten years of progress. And so with the other fields of practical dentistry. *Then why, when that which is necessary to know, is so little known; should dental students be compelled to study a great deal that is not necessary?* As reasonably might a farmer neglect the study of agriculture for that of astronomy, and think, thereby, to fill his barns. A great deal of histology, anatomy, materia medica, etc., has as little bearing on dentistry as astronomy has on agriculture.

Let it not be thought that I am advocating a lower standard of education; on the contrary, I advocate—I will not say a *higher*, but a more *concentrated* line of study; not to diminish the length of courses and terms, but to turn their stream of time into channels of greater utility; not to destroy the ideal and scientific

in dentistry, but, in consistency with its nature, and in justice to humanity, to urge the claims of the practical and mechanical. We would not blame the farmer for making the study of astronomy, *if it did not detract from his study of agriculture*; on the contrary we would rather commend him for it; such study would expand his soul and make him a better man, and thus, perhaps, a better farmer. It might even teach him something bearing practically on agriculture, such as changes in the weather; but let him not, when he visits his agricultural society, mount a high horse and denounce every other farmer as vulgarly practical.

“Whose soul proud science never taught to stray
Far as the solar walk or milky way,”

But who considers his orbit lies in groveling among potatoes and squashes on this planet, leaving the volcanoes of the moon to take care of themselves.

This paper is aimed, as the reader has seen, at the growing disposition of the profession to insist that the M. D. be attached to the D. D. S., and to carry the education of the student outside the proper limits of his specialty. The writer believes that such a course, if insisted on, will be as inefficient for good as the removing the object outside the focus of the lens, is inefficient for collecting on it the rays of light and heat. In diffusion of light is comparative darkness. In diffusing the brain power of the average student over a wider field, the less is that brain power applied to each portion of the field.

HISTOLOGICAL DEVELOPMENT OF THE PRE-NATAL DENTAL TISSUES.

BY DR. S. M. WILKIE, SPRINGFIELD, ILLINOIS.

It can scarcely be expected, with so broad a theme, and in the allotted space, that a detailed consideration of this subject will be given. I will, therefore, in a general and synoptical way, notice a few points relative to the study of dental histology, with now and then a reference to the heading of this article. Possibly some fledgling will query: “What do I care about pre-natal dental tissues? It is sufficiently difficult to acquire a

knowledge of those tissues with which I have direct contact." In a general phase the question may carry some potency. But the dental mind, fond of its vocation, and imbued with a spirit of devotion, will not view lightly a subject so important.

It will not be far from the truth, when I say there is less known about dental histology than about any other branch of our specialty. A well versed physician can tell about the growth and development of all the physical organs of the foetus, perchance, from its embryonic to its foetal stage. But how many dentists can intelligibly express themselves upon the budding, so to speak, of the pre-natal dental tissues? The characteristic rush of American enterprise enters too largely into our profession; else we could have something better than the excuse, that "I haven't time to study the details of points so puzzling."

More eminent men than we have spent long, weary hours in evolving from the *unknown*, knowledge, by which we, to-day, profit, and the fruits of whose labors we pluck. It is to our shame that it must be said, that many dental practitioners have no higher ambition than simply to be barely able to pass the requisition of the Board of Dental Examiners, or College Trustees or Faculty, as the case may be.

We do not possess the rigidity of some of the European countries, and possibly not the merited acumen. But my prelude is lengthy. To my theme: A knowledge of the germination of the dental organs is absolutely essential to a thorough version of dental histology. To some minds, a smattering, a glance, will suffice; but not for the student. I use the term *student* in its broadest and highest sense. It is noticeably a fact that the finger of the great dental army is pointing toward THOROUGHNESS. The devoted mind will grapple for points, hints and queries, as naturally as the hungry stomach craves its food.

It matters not from what source the aid may come, or to what it has application. In the economy of an All-Wise Provision, it would seem, that in the development of the pre-natal dental tissues in the foetus, some, at least, play their part, only to be sloughed at birth, as the autumnal oak sloughs its leaves. For instance, "Meckel's cartilage," the "inter-maxillaries;" the former plays only a transitory part in the growth of the maxilla, and lies in the interior of the arch. Being inclosed in the embryonic tissue, it holds within itself the fundamental elements of the future jaw;

that is, at this particular period of intrauterine life. The latter are recognized only in early foetal existence by our authors of histology; for that reason they sound as foreign words to some ears. In the science of zoology, they are considered prominent elements, as the point of union with the maxillæ, describes the dividing line between the incisor and cuspid. Be it remembered that "in foetal life the upper jaw is composed of four bones, viz.: two maxillary and two inter-maxillary." The inter-maxillæ are distinct bones in the human foetus; their external surface is covered with a process from each maxilla, which extends toward the median line, and becomes intimately fused with the former before birth; so that the inter-maxillary suture cannot be seen on the outer side, but on the palatal aspect of these bones the suture can always be recognized at birth."

In reference to these bones, Gray says: "In many animals they remain permanently separate; in human subjects, where the jaw is malformed, detached pieces are often found in this situation, probably owing to their arrested development." It seems to me that an intimate knowledge of these parts is indispensable to a thorough education, particularly in dental surgery. It comes by hard work, but it pays. Many students are discouraged by apparent contradiction of authors, and an incongruous use of terms. That deserves only the name of excuse. Take some of the best means we have of acquiring knowledge of these parts; for instance, Dr. Dean's translation of Legros and Majitot's "Origin and Formation of the Dental Follicle." I say best—this probably is as good as can be had, short of actual privileges of the scalpel, microscope and subject. Getting a definite idea of statement of facts; associating that idea with certain other facts, or even statements, a susceptible mind will, therefrom, form a reliable conclusion. Until the fondness of habit is formed it is hard work. It is like putting the amateur sophomore to the blackboard for his first demonstration in physics or mechanics. As an instance I refer to the sac that invests the enamel organ and dentinal germ. Wedl says the dentinal germ proceeds from that sac. Kolliker (5th edition) says the dentine-papilla arises from the bottom of the dentine sac. There is not so much contradiction here between the two eminent authors, as there is a want of distinction of terms. The use at this instance of the word dentine-papilla is apt to confuse; for if we accept Dursy's

authority—and his is paramount—the term dentine-papilla should not be used. As it emerges it takes that name. Dursy says: “The first germ of dentine appears in the dental *sacculus* as a dark, semi-lunar area at the bottom of the dental groove; at certain points it corresponds to the position of the subsequent teeth. This structure is not new, but develops into the form of papillæ projecting against the ameloblasts, (enamel-germs) while the remainder atrophies.” Wedl and Kolliker are not sufficiently plain in their use of certain terms, while at times there is no distinction.

The writer has always been able to take the statements of the two men on histological questions and evolve a definite idea. Histology is something like mathematics. We get the hint—the rude statement of something to be considered; but the intelligent application of the principle is determined largely by the susceptibility of the mind, and the spirit of interest that characterizes the student.

In the statement of Wedl and Kolliker there is a want of clearness. Possibly the disinterestedness of students make them seem more so. Neither describes minutely the growth of the dental germ. They do not say whether it springs from the bottom of the sac, or from the surface of a sheet of tissue, which, in the end, forms the sac. Rather they leave us to infer that it originates “upon the surface of that tissue which afterwards forms the sac.” Wedl and Kolliker agree with Tomes, and Legros, and Magitot, except the former histologists “believe that the base of the dentinal bulb is enclosed within the walls of the sac;” whereas, the others believe the follicle, from its apex to the base of the bulb, to be invested by the sac. Be that as it may, if the student be careful to understand as he advances, he will avoid confusion. Whether the bulb is inclosed slightly or invested wholly, we know that at this juncture we have the dental follicle, nearly definitely completed. Soon the epithelial cord is to be severed from the enamel organ, by the resorption of its constituents,—“a cessation of continuity,” is produced by the encroaching walls, which, uniting at this point, wholly envelope the follicle. “In this way the enamel organ loses the connection it hitherto had maintained with the epithelial lamina, and the dental follicle is complete.”

I fear I have swerved from the purport of this article. If I

have said anything to encourage or prompt any one to a closer study of this sublimest and deepest branch of our profession—Dental Histology—I will feel rewarded. It was through an article from the fluent pen of Dr. George V. Black, that I was prompted to a closer study of histology. Whether Dr. B. is ever otherwise rewarded, he is fully paid for the time spent in its production. May this, my first effort, be as prolific.

PAINLESS EXCAVATING.

BY A. G. BENNETT, D.D.S., PHILADELPHIA, PA.

IN the OHIO STATE JOURNAL for October, Dr. Boyd, in his article under the above caption, makes some statements which are so contrary to accepted modes of practice, that some comments seem to be in order.

Dr. Boyd thinks that oil of cloves and creosote (and carbolic acid too, we presume) have not only no beneficial effect on tooth substance, but probably are more or less injurious. Why the Dr. so thinks, he fails to inform us. We will give some reasons why we think that these agents are not only not injurious to dentine, but are positively beneficial. As about one-fourth of the dentine is organic, and contains nerve fibrils, a cavity in a tooth is really a wounded and sensitive surface. Now, placing a metal in direct contact with the organic substance and nerve fibrils of dentine, especially that in which calcification is deficient, and then claiming that such a mode of filling teeth is the best that modern dentistry has to give, is at least putting one's self on record in favor of ancient methods.

Now even though all good operators may not follow the practice of medicating cavities, we claim that, as a filling is a foreign body, and it takes some time for a tooth to establish a "tolerance" to its presence, a cavity is much better prepared for the reception of the filling by being saturated with a medicine having antiseptic, disinfectant and anæsthetic properties.

Though theorists have had much to say about the incompatibility of filling material with tooth substance, and though scientists have failed to give us the "true inwardness" of the subject; yet it seems reasonable to assume that, by properly medicating

the cavity, there will be less sensitiveness to thermal changes, and less liability to chemical action than if such treatment were ignored. Or, taking the facts which science has given us in regard to the composition of dentine and the properties of carbolic acid and creosote, no arguments, nor even experiments, are required to prove the beneficial effects of these agents in soft teeth and deep cavities; and if they exactly meet the requirements in such cases, the rationale of this treatment is established, in all teeth, and in all cavities.

But if one should question the utility of these medicines in living teeth, there can be no disputing the fact that, in devitalized teeth, antiseptics and disinfectants are positively required. Besides treating the interiors of such teeth with the usual disinfectants—iodine, iodoform, permanganate of potash, etc.—the pulp-chamber and canals, and the greater part of most cavities, should be filled with material having decided antiseptic and disinfectant properties. The best material that we know of for this purpose is oxychloride of zinc.

Dr. Boyd's method of protecting the cavity by a pellet of cotton from being wounded by "vicious plunges" of the excavator, is no doubt good, and even necessary, when hatchet and hoe excavators are used for chipping down "marginal enamel;" but it goes without saying that excavators of any form are not the best instruments that can be used for trimming enamel—chisels of the proper size and shape being much better.

The next step the Dr. properly remarks "is the removal of the cavity lining of tooth substance;" yet his mode of doing that, is, in our opinion, anything but best. He says in substance, begin at one side and press away and peel off the leathery mass towards the center of the cavity. This method of removing the leathery mass is advised for the purpose of relieving pain. It is no wonder, then, that "it is the writer's opinion that ninety per cent. of pulp exposures are unnecessarily made by the careless handling of excavators;" and, we may add, removing decay in that manner.

It may be stated as an axiom, that the only safe and proper method of removing leathery or horny decay, is to begin at the center of the cavity and cut towards the border. The reason for this mode of operating is that the layers of dentine run deeper and deeper, and their removal at least in all deep cavities will

almost certainly expose the pulp. Besides cutting toward the center of the cavity, except from the cervical wall, is always more painful than cutting from it. But further on in his article, the Dr. advises cutting in this direction, when using a dragging instrument—whatever that may mean—thus first advising cutting toward, then from the center, to secure painless excavating. But the last injunction atones for all inconsistency: “Be positive and brief in excavating, and stop when done.”

There is no disputing the fact that much needless pain is inflicted by dull, improperly shaped, and unskillfully handled instruments; yet no matter how perfect the form or how keen the edge, not much can be done in the way of painless excavating by even the skillful use of instruments alone; but one must rely chiefly on the pain obtunders and temporary fillings used for this purpose. In regard to the remedies for sensitiveness, we can add nothing to what is found in dental literature, or taught in the colleges on this subject.

The greatest amount of pain is inflicted—not in obtaining a strong, smooth border, nor always in removing the decay—but in shaping the cavity to retain the fillings, especially in grooving, which must generally be done along the line of greatest sensitiveness.

Materia medica may yet give us more effective remedies for the sensitiveness of carious and partially decalcified dentine; but one can safely assume, that any remedy which will entirely relieve the pain of drilling pits and cutting grooves, will endanger, if not destroy the pulp; so that shaping the cavity may be comparatively, yet can never be absolutely painless.

FILLING MATERIALS AND THEIR EFFECTS ON OUR PROFESSIONAL WEAL OR WOE.

BY ANON, CLEVELAND, O.

AFTER so much has been said, and the results so fully pointed out, we would expect amalgam to have few followers. In any other department of medical or surgical science, practice, and materials with so great a per cent. of failures, and so universally condemned by high authority, would find few, if any, advocates,

Where is there another professional calling whose votaries will hazard reputation, as the dentist invariably does by the indiscriminate use of plastics? True it is, that many standing high in dental fame advocate and daily use these materials. What their honest convictions are we will never know; but we will give many credit for knowing better than they practice, that they are influenced by other reasons than the sterling worth of these compounds.

That Dr. Blank, conceded by all to be one of the most learned and foremost in our ranks, uses plastics, is excuse enough for many lesser lights, both old and young, for doing likewise. The influence Dr. Blank exerts upon the older members of our profession we care little about, as we do not look to them for the same advancement in science or art as the coming man. With the young man must this responsibility rest, and let him weigh well his future standing, in case he reposes upon this bed of indolence. Does Dr. Blank, when, from his lofty perch he proclaims his modes, stop to think to what extent the destiny of his hearers is in his hands? We are creatures of imitation, and how many times we find a young man following the suggestions of his elders, simply because of their high standing they ought to know whereof they speak.

Not long since the writer was in conversation with one, who, for professional qualifications, has few equals, and one we are all glad to hear from in our conventions and journals. The question of amalgams and fibrous foil or tin came up, the writer making the assertion that he was using gold and Robinson's tin almost exclusively for filling. Our learned brother said, "You cannot afford to make tin plugs as cheaply as amalgam, admitting they are better. What do you do for a poorer class, servant girls for instance, who can afford to pay but moderate sums for services, when they are entitled to just as reputable dentistry as those better able to pay?"

Here is just the point: My brother admits that the servant girl should have skillful attention, irrespective of her ability to pay, and still he must do a disreputable thing in order that the party may be served by a "reputable" dentist.

It is on account of the greater time required for tin that these men use amalgam. They are busy men and time is money to them. They well know that by so doing they get nearly as

much for the time occupied as when working for the richer with tin or gold.

Gentlemen, the dollar stands too much in the way of our doing our whole duty in each and every case, as is very truthfully shown in many instances (some of which we will name), and these little shortcomings, here and there, make up the whole of our reputations.

Lately we have heard some complaint made of tin when used at cervical walls. We are inclined to think the failure came from lack of careful attention in introducing the first blocks. Many are apt to use the blocks too large, thus not insuring perfect adaptation. Such was the writer's experience at first. Many of us have an idea that nothing but gold is worthy our best efforts, and are careless, thinking this is only tin. If the same care is taken with tin as with gold, using no larger blocks than can be fully condensed, we shall have more good reports of it.

Another excuse for many good operators using amalgam is easiness of introduction. To shun hard tasks is not uncommon among the majority. Perhaps this man is without an assistant. There are many such. Difficulties, and even impossibilities, often come to this class in adjusting the dam, and introducing the gold. To such, the temptation to use amalgam must be very great, and that the tempter conquors is too plainly evident.

Any of us can call to mind cases where the accessible places were filled with gold plugs that none need be ashamed of; but on looking at the posterior teeth, we found large amalgam plugs, inquiry revealing the fact that the patient was willing to pay for something better, but was advised otherwise; or, perhaps, the operation was completed without giving the patient an opportunity of making a choice.

Again we find those, who, in their younger days would have despised the use of plastics, yield the point when advancing years and well filled purses made great exertions unpleasant; or the case might be as with a practitioner who once said to the writer, "I am not after reputation now (I will soon retire), but to get all the money possible."

Brethren, it is not a delusion when we say that amalgam and its advocacy in high ranks are demoralizing. The young man looks up to the leaders for sanction and approval, not to the quack. The dentist's standing is fully shown in the mouths of

patients from his hands. Each patient is a record that must go abroad, showing our intents and purposes, whether good or otherwise, whether our aim is at this world's goods, or the good will of man and his well being; the remuneration being an after consideration. We would say to the young man, let plastics alone, keep them out of your practice, with rare exceptions. Form your habit for hard work and thoroughness, with gold and tin. There is nothing about amalgam that inspires man to his best effort. We have yet to see the man that looked proudly and approvingly on a mouth full of black paste. Then let us build monuments we will be proud of, and place our calling above that of the mason with his mortar and trowel.

Correspondence.

"I charge you that this epistle be read."

INDIANAPOLIS, IND., December 28th, 1883.

For the Ohio State Journal of Dental Science:

DEAR SIR:—In the proceedings of the Northern Ohio Dental Association, reported on page 567 December (1883) number of the JOURNAL, Dr. Frank Craeger, of Fremont, Ohio, is given credit for an improvement upon the electric mallet to produce single strokes.

In 1876 I made an electric mallet which combined the single and continuous strokes; and in 1878-79 used it at Philadelphia, and exhibited it to many persons, who will testify to the same, if asked to do so. Since 1879 I have used it in my practice when necessary. At the 1880 meeting of the Indiana Dental Association, I formally presented it to the profession, with drawings and an explanation of its working qualities; how to make it, and how to apply the principle of the single stroke to the Bonwill-Webb, and other pluggers. The same year, 1880-81, Dr. Walton, of Fowlerville, Mich., who was then a student of the Indiana Dental College, made one under my direction, and had it in working order before leaving college.

At a meeting of the Ohio State Dental Society, at Columbus, December 7th, 1881, I exhibited the mallet to Mr. Ransom, and

he referred me to H. D. Justi's agents, who were there and saw the mallet, and subsequently sent a Mr. Schmitz to see me in this city. He saw the mallet work, and took my drawings and has them yet.

At a meeting of the Illinois State Dental Society, held at Quincy, May, 1882, I explained my mallet to several members, among others, Dr. Hurtt, of Peoria, (now of Mt. Carmel, Ills.,) and showed him, by drawings, how to apply the single stroke to his Bonwill-Webb mallet. I do not think there is *any great thing* in the single stroke, and it is new only as far as its application to the electric mallet. With it the instrument is much more effective, etc.; but whatever credit comes from its introduction can be shown to belong to me, and from the fact that I have so freely shown it to members of the profession.

Very Respectfully,

J. B. MORRISON, D.D.S.

Editor's Specials.

• "Write the Vision and make it plain."

FACT AND FANCY.

"SAY not thou, what is the cause that the former days were better than these? for thou dost not inquire wisely concerning this." These are "the words of the preacher, the son of David, King in Jerusalem," and they seem to show that croaking is not a new invention. Some will believe that "there's a good time coming," and glory over the "good old times;" but with them, *now* is the accursed time, now is the day of damnation. They cannot enjoy the waving grain at approaching harvest, because a brier is growing in a fence corner beside it, nor a flower garden, because a lizzard gambols on the gate post. The past they worship, the future they eulogize, but the present they despise.

And this mental state leads to an undue estimate of anyone who seems to be a relic of the past, and thus it is that a stupid, wild Indian is supposed to be, by nature, a physician. He has been so little spoiled by civilization that he is popularly supposed

to be wise enough to pile up dirt into a conical shape, and therefore he is almost the equal of a genuine mound builder. If his pretensions are only as profound as his ignorance, people of average intelligence will flock to him for the cure of every ill, because he is not contaminated by the erroneous teachings of these degenerate days, but is inspired by the gospel of the "good old times" when men were wise, and women were their slaves.

With this trait so strongly stamped on humanity, it is not strange that our friend and co-laborer, Dr. Barrett, on going to the Peabody Museum of Archaeology, at Cambridge, Mass., went with not complete freedom from the popular delusion referred to above. He says: "Allow me to say that I went there a believer in the modern origin of dental lesions. I was firm in the faith that tooth-ache and stomach-ache and most other aches are due to our sins; that the human race is gradually deteriorating, and that man as he departs further and further from Nature's simplicity, and surrounds himself more and more with the concomitants of a high civilization, as his life from generation to generation becomes increasingly artificial, so does his bodily ills increase, and diseases multiply in number and virulence. I had long been accustomed to tell my patients that were it not that the dentist's skill kept pace with the alarming increase of dental diseases, and were the law of heredity to continue in full geometrically-progressive force, the human race must in a very few generations become edentulous."

For more than a generation we have heard wailing and lamentation over the rapid degeneracy of our race. It has been claimed that men are mere dwarfs now, and that wisdom was buried in the graves of our grandfathers; that life is shortened, in brief, that all was going to moral and physical ruin. Yet during this period the lives of the English-speaking races have been lengthened over ten years, and there has been nothing like failure in physical strength or mental attainments. Had intoxicating liquors been universally discarded, the Anglo-saxons would doubtless have doubled the length of their lives in the period spoken of. And that there has been no letting down of physical prowess, the ancient armor worn by the old heroes, which is still preserved in museums, bears testimony; for though "there were giants in those days," yet, in the language of the schoolbook, the average man was "about as large as I or uncle James." No doubt

the fast boys of the next generation, when reading of the daring robberies of Frank and Jesse James, will picture to themselves a pair of giants, each the size of Goliath, with the proportionate strength of Sampson.

Now, inasmuch as dentists are men of like passions, and not an exceptional class of humanity, it is not strange that they are and have been, more or less influenced by this morbid sentiment. It is well for us, therefore, to carry out the good resolution unanimously adopted by our good friend, Dr. Barrett, as described in his article in the October number of the *Independent Practitioner*, on the "Condition of the Teeth of Certain pre-historic American Races," in which he says: "When I put myself face to face with the records of actual fact, I found that my fine-spun hypotheses would not hold water, and I dropped them at once, and again resolved for the thousandth time to speculate less and to examine more."

As a result of this examination he is able to tell us, "With the exception of the syphilitic diseases, there is not known to-day an oral trouble which all these nations were not familiar with, in its most exaggerated form." And further down he says: "In the jaws of all the people whose skulls I examined, I found traces of all the diseases known to modern dentistry. There was caries of the most formidable character, black, white and brown.* There were marks of abscesses which devastated great regions of tissues. There was necrosis which had caused the loss of great sloughs of bone. * * * There were great masses of tartar enveloping all the teeth in the jaw. There were indications of all kinds of inflammation of soft tissues. There were exostoses and hypertrophies, absorptions and malformations, denudations and abrasions, exfoliations and irregularities."

Now all these things were found in the skulls of those who lived before the "good old colony times, when we lived under a King." Our friend has found that, in those olden times so eulogized and idolized, men and women suffered all the dental agonies incident to the present day, without any of our present means of relief worthy of a thought. Musing on the helpless condition of one of the victims whose death must have been a relief, our friend exclaims: "'Poor fellow! your lot *was* a hard one. Why the

*Will Prof. Mayr please notice?

mischief didn't you have it filled with amalgam, if you could not afford gold?' And then I recollected that he was deprived of that inestimable last gift of a good Providence, the modern dentist, and could only suffer and groan and howl and kick the furniture about, and try old-women quack-nostrums until he felt better."

The doctor, by this paragraph, has gotten up a slight suspicion that he may have had toothache. He ought to be ashamed of himself, and he would be if he were big enough to be ridiculous. Why didn't he have it "pulled, extracted or drawed, whichever is best for it," as a patient proposed to have her tooth treated by us when a young physician.

We have been young and are now old; and therefore we have had opportunity for observation that may throw a little light on the subject of the degeneracy of the teeth. Over thirty years ago we began the practice of dentistry in Xenia, Ohio, in an office having already a heavy patronage, due to the skill and popularity of Professor J. Taft. Our opportunities for observation were good at the start, and have been good ever since. And we can bear testimony that in this community the teeth are far better than they were a generation ago. This is especially noticeable in nursing mothers, and children in the schools. We believe the experience of other aged dentists will bear a similar testimony.

Dr. B. has taken the proper course to obtain reliable statistics. We have been annoyed often by random statements professing to give statistical information. Many years ago, a member in the American Dental Convention, perhaps, stated that he had spent a day among some mounds on the Atlantic coast disintering aboriginal skeletons, and had thus collected a bushel of teeth, and had not found a decayed one among them. We quote from memory, but have the papers; and we suggested at the time through one of the journals, that if Gabriel would give him the contract he would not need to blow his resurrection horn, as this man could probably raise the whole race as fast as they would be wanted.

EXTREME ECLECTICISM.

THE first article in the November, 1883, number of the *Dental Cosmos* is entitled "Eclecticism and the Extremists." We

have not the pleasure of a personal acquaintance with the author, but we refer only to his article.

After starting out on a truly philosophical basis, that specialists, or adherents to special dogmas in medical science, must stand on the defensive to maintain the reasonableness of their own tenets, and must assume, as well, the offensive to show the unreasonableness of the opinions held by others, we are told that "All the learned professions have their conflicting specialties and schools," and that "The dental profession is no exception to the rule." Really he frightens us with the thought that the fight has but just begun, even though all past warfares are as nothing in comparison with the quarrel on hand just now.

A simple-minded boy was familiar with the old-fashioned militia musters,—even with the sham battles fought with shot-guns, old umbrellas, cornstalks, etc. He drifted into the Mexican war in time to take part in the battle of Buena Vista. A comrade at his side fell, pierced by a bullet. "Confound the cowards," said the raw soldier, "them fellows is gettin' mad and usin' lead,—so here goes;" and for the first time he loaded with a bullet. Such has been our fate. We didn't know before, that any fight was on hand, and have used nothing but wads. But just listen what a war we have, as our good brother Dr. Thompson (with a p.) describes it: "The profession of to-day is the field of a conflict, the magnitude and importance of which dwarfs (dwarf?) everything it has ever passed through before." We had not heard of it. Hadn't really!

"Now tell us all about the war,
And what they kill each other for."

Ho! Yes! Here it is. "We refer, of course, to the struggle for supremacy and dominion now existing between the *plastic* or 'New Departure' party and their opponents, the *gold* or Esthetic party." And that's the fight! Well, really! And we never knew it.

We are told too that there is a "definite separation of the profession into two well-defined parties," one is the *plastic party*, or *liberals*. Why not call it the soft party! And we are told that it claims "that the dental profession is now thoroughly inoculated with the New Departure principle," and that it "is a changed organism." We are told, further, that "They claim also

that the plastics will hold the balance of power, and because of the spread of the belief in the doctrine that 'materials other than gold for preserving some teeth are better than gold.' How is it that there was room for that doctrine to spread? Every dentist, worthy of the name, for two generations, has believed it. But another sentiment has spread, it is claimed. We can give you the words of it, but have no clearer idea of its meaning than we have of the Chinese words on the tea-packages. It is, "In proportion as teeth need saving, gold is the worst material with which to fill them." We have given that sentence up, as entirely too much for our head, after days and nights with sleepless eyes.

So much for the "plastic party." Who wars on the other side? We are kindly told by this historian of the war that it "is the *all-gold*, or *Esthetic* party." The platform of this party is not a broad one. The historian tells us its "object * * and its one ambition is (are?) to maintain things in *statu quo*; to preserve institutions, customs, and practices as they found them, and to transmit them unimpaired to posterity; to continue to do things as the fathers did them, without variation, because the fathers so did them." Tell us where the members of this party have kept themselves. They have not taken part in the dental societies, or we would have met them, or have read reports of their remarks. They have not written for the periodicals, or we would have seen their effusions. They have produced no text-books. Have they ever been beyond the boundary lines of this writer's imagination? Nay, verily. He has never seen or heard of a dentist holding sentiments or opinions approximating those he has imputed to what he calls the "Esthetic party."

He represents this party as persecuting the plastic party. Hadn't heard of the cases. Who has been punched, thumb-screwed, or roasted at the stake? And these two wholly imaginary parties are represented as in a hand-to-hand warfare—"at swords' points on the subject of the selection of materials for filling teeth." When the darby ram was bled to death, that the convalescent King might "return to his mutton," the good old song tells us that

"The boy that held the basin
Was drown-ded in the blood."

But we believe the basin held all the blood shed by the "sword's points" of the imaginary parties in this imaginary conflict.

And yet, after all, the same historian has the kindness to tell us that there is not much of a fight going on. He says, "it transpires that there are very few practitioners who use either gold or the plastics exclusively. Most of the gold men use some plastics," etc. Still further, "Some plastic men use gold as much as some gold men; and yet advocate plastic fillings. So the contending camps are divided in theory, but * * are not very far apart in practice." Again we are told that "Every conscientious operator acknowledges that the practice of either extreme tenet will not do." So it seems that the fight is happily left to the unconscientious operators, which is very gratifying; for the sooner they kill each other off the better for the profession and for society. And that is about all we know of the fight. Had it not been for the kindness of this correspondent we would not have heard of it. In the ludicrous affair called "The Battle of the Kegs," the poetic historian says:

"The cannons roar from shore to shore,
The small arms make a rattle;
Since wars began, I'm sure no man
E'er saw so strange a battle."

But that occurred before this one, which entirely eclipses it.

TWO DEANS ON DENTAL CARIES.

THE following paragraphs show what our reporter thought they said. The one speaking first at a late meeting said: "In my judgment dental caries is but one disease, the acid—mineral or vegetable, whichever it is—breaking down the tissues, and the micro-organisms completing the destruction."

The other says, as reported: "The acid theory is the most generally accepted. The differences in the appearance of the residuum are mainly dependent on the kind of acid causing the decay. Sometimes it is tough and leathery, sometimes brittle, crumbling readily—completely disintegrated. He did not agree with the idea that these differences could be accounted for by the varying strength of the agent causing the decay, because the acids are always in a nascent condition, and so attack uniformly as to strength. A better explanation would be the varying degrees of density of the tooth structure. It seemed to him that we could

very readily decide which acid had an affinity for tooth structure, out of as well as in the mouth, and thus know which had caused certain results. His impression was that bacteria did not cause dental caries, being merely secondary. If they were primary we would find the organic material destroyed and the lime salts remaining."

These are the opinions of representative men, each a leader in a popular dental college. In the above paragraph there is a substantial agreement, except that the first one, and the younger of the two, believes dental caries to be unitary, which we regard as an untenable position. It seems strange to us that any man, once a teacher of chemistry, should apparently forget that chemical action is definite. Black and white decays differ more widely than do sulphate of copper and nitrate of potash, and certainly no chemist is likely to claim that the difference in their appearance is due to the relative strength of a corroding agents, when the salts are formed.

Further down, as we read, they both agree that "chemical abrasion"—erosion—is immediately caused by lactic acid. Having been the first, probably, to claim and demonstrate this, we are not inclined to discard it now. But it may be worth while to notice that acetic acid, when nascent, is capable of producing so nearly the same phenomena, that the difference is scarcely observable. But by taking the constitutional conditions of the patients into consideration, serious mistakes may be avoided.

It will be noticed that both these men take direct issue with the extreme germ-theory advocates, who claim that micro-organisms are always the exciting agents in decay, one maintaining, if we can understand his language, that these minute organisms can penetrate the organic matter between the enamel rods, and propagate therein, and be nourished thereby till, by destroying it, they break up the connection of these prisms with each other, and expand by development and growth till they comminute and mechanically break up the enamel. And, "if these things be done in the green tree, what shall be done in the dry?" or, if they can thus destroy enamel, what can they not do in the dentine, where they have abundant room for their devilish deeds?

One of these deans referred to has stated publicly that sometimes these micro-organisms are not present at all in any stage of the decay; and the other, and younger one, claims that it is not

demonstrated that they are always present, even as secondary agencies, to which position both assign them when present. And in this they truly represent the advocates of the chemical theory; for we know of no one of these who holds, or ever has held, that these organisms do not usually modify decay, but always as secondary agents. We have referred to maggots in a dead carcass to illustrate the true relation of these little things to decay, and a good brother has understood us to mean that they are maggots, or maggots are they, we don't know which.

It must be a little vexatious to the germ theorists to find, contrary to the hopes of all and the assertions of some of them, that Dr. Miller, just now the most industrious experimenter in our profession, is in accord with the opinions of these two representative men we have quoted. In other words, he advocates the chemical theory of decay, as is shown by his published papers and by the letter of Prof. Wright in the January number of our *JOURNAL*. Of course we expected nothing else, as we knew that Dr. Miller was repeating substantially the same experiments we had tried between 1855 and 1862. Of course we do not claim that he must arrive at all the minutiae of our conclusions; for two men watching the same transaction fail to see it alike as to details.

Let us say that we do not insist that an experimenter must find the definite acids that we regard as the exciting causes of caries and erosion. These can and do produce all the phenomena of primary decay and erosion; and it may be a few other agents are capable of doing the same things, but we have not been able to recognize them. And when we say that the micro-organisms, when present, change the appearance of the decaying cavity, we are stating nothing more marvelous than to say that maggots change the appearance of the putrefying carcass.

When a great crime is secretly perpetrated of course the community is shocked, and diligent effort is made to ferret out the guilty. In nearly all the cases search is made too far away from the scene of the crime. So in searching for the exciting causes of caries, some mysterious agents must be named or the average reader will not credit the discovery. If a newly discovered chemical agent, with a mysterious, high-sounding name, is introduced to consideration, the professional mind is all agog, even though the one who sets up the new claim may be so illiterate

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and so ignorant of science, that he cannot write an intelligible account of it, nor even read one after having hired a more scholarly brother to write it for him. This is in accord with human nature which runs wild after mysteries, notwithstanding the fact that nearly all chemical changes result from the action of the most common and well known re-agents. The principal objection to our conclusions as to the specific exciting causes of the different varieties of caries is that they are too simple.

IS A PRECEPTOR A NUISANCE?

ACCORDING to our report of the late meeting of the Ohio State Dental Society, Professor H. A. Smith says: "The worst students we receive are those from dental offices—the voluntary students who come without office preparation are the best."

Such was not our experience when connected with the same college, either as pupil or teacher. At the time Prof. S. graduated the faculty and the board of examiners each cast as many votes for a student as there were professorships in the college, using white and colored balls. If a student's examination was satisfactory on anatomy, chemistry, operative dentistry, and mechanical dentistry, and unsatisfactory on pathology and therapeutics, he received four white and one colored ball. At that examination three of the class received all white balls, and they had all come directly from the offices of their preceptors. And we feel almost confident that if any one will look over the list of graduates and find the names of those who have figured best since the graduation, it will be found almost invariably they were office pupils. J. G. Hamill, Eli Collins, C. R. Taft, J. A. Watling, Will. Taft and George Watt are all pupils from one office; and Prof. Smith, Prof. C. M. Wright and C. I. Keely are from another. Varney C. R. Butler, Prof. Richardson, Jennings, and hosts of others equally worthy of mention, were office pupils. And we find ourselves unable at once to present from memory as many who were not office pupils, who have been equally useful in the profession.

Professor Smith has good opportunities for observation and comparison. He believes what he says; and we fear it is true. But what is the interpretation? Have preceptors become indifferent in reference to the attainments of their pupils? Probably;

but strange that they should do so. We recall a case where a preceptor looked exceedingly gratified on learning that his pupil had his name on every quiz, and had never hesitated, nor given an unsatisfactory answer. Preceptors should be ashamed if Prof. Smith's statement is true.

A CHARGE OF FALSE PRETENSES.

IN our report of the discussions of the Ohio State Dental Society, we find Dr. C. R. Butler saying of a certain thing: "It is all bosh; * * * it is like the man who does not use amalgam." Prof. H. A. Smith then said, "Does he?" to which Dr. Butler replied, "He does."

At a meeting of the Illinois State Dental Society not very long ago, Prof. J. Taft stated that he had never used amalgam. We have stated that we never used it, and never saw it used. Dr. B. is aware of all this, and that many more have made similar statements. Does he charge us all with falsehood? or did he forget himself?

We shall not remind him of the well recognized principle in mental philosophy; that every man estimates the moral character of his neighbors by his inner consciousness of his own; for that would savor of the "you're another" argument.

In the Madriver Valley Society a member once told of an amalgam filling, which he removed and replaced with gold, which had been inserted in the mouth of Rev. Dr. S. by Dr. Geo. Watt. We were absent, but friends reminded him that we didn't use that material; but he adhered to his statement, and expressed a determination to expose false pretenses wherever he found them. Hearing of it, we requested him to see Rev. Dr. S. and correct. He finally did so, and without waiting for the next meeting, he sent printed slips to all the members, telling them that Dr. W. had removed a number of amalgam fillings and refilled with gold, and would have treated the one in question the same way, but for an attack of illness, from which he did not recover till the reverend Doctor had to go to a new charge. We are not aware of a renewal of the charge till at the late meeting, and in view of its source we might well pray to be saved from our friends.

In the meantime we are pleased to see our best and most

progressive dentists, as they gain in experience, advising against the use of this class of alloys. With what Uncle Jerry calls the "new amalgam," or the "amalgam without mercury," there is less call for them. Except in a somewhat strained sense, mercury is essential to the existence of amalgams, therefore we hope Dr. Robinson will give his a better name, for there is something in a name.

LISTERINE.

THE very name has an antiseptic suggestion or significance. It is a most elegant preparation, and is one of the most convenient of the anti-septics. The specimen before us is from Lambert & Co., of St. Louis. Its formula represents Thyme, Eucalyptus, Baptisia, Gaultheria, and Mentha Arvensis in combination. Each fluid drachm contains also two grains of refined and purified Benzo-boracic acid. We have found it admirable for foul ulcers, offensive abscesses, either in full strength or diluted. It is a most pleasant and excellent mouth wash, a good gargle; and taken internally it corrects the state of the stomach causing offensive eructations. We state all this for the benefit of dentists and their patients, and we believe the manufacturers can do themselves good by giving our publishers a page advertisement.

THE MISSOURI DENTAL JOURNAL.

THIS solid periodical has suspended publication at the close of its fifteenth volume; and we are very sorry. We waited and watched for its coming as "they that watched for the morning," especially in the years that our worthy friend Professor Spalding had editorial charge of it. And we rejoiced to see that it proved no less interesting under the new management. But it has ceased to be,—a sad event which should not have happened. The profession in the west should have prevented such an occurrence. But "let the dead past bury its dead," and let its late editors and contributors bear in mind that the pages of the OHIO STATE JOURNAL await their ready pens; and we truly believe that through it lies the best and most ready way for them to reach the bulk of their former readers. Such pens as those of Spalding, Pearson,

Patterson, and Hungerford and others, too numerous to name, should not be allowed to shrivel or rust. The readers of the *OHIO JOURNAL* will give their effusions a cordial welcome and close attention.

HOPELESS SORROW.

ONE of our periodicals is in trouble about the action of dental societies, and we don't know how to help it. Societies, like other people, are apt to claim the ownership of their own private property. But listen to the complaint: "When we have employed a reporter for the purpose of giving to our readers an account of the doings of some professional body, his requests for information and facilities for obtaining a report have been met by showing him some eighteenth century by-law, which forbids the publication of the proceedings until they have first appeared in the volume of transactions that appears at intervals of one, two or three years."

Then there must have been a dental society older than the old "American;" but it is quite generally supposed that the straw that broke this journal's camel-back was laid on by the Secretary of the Ohio State Dental Society at its late meeting. The journal referred to had a reporter, and he had the same facilities and opportunities that the other reporters had; but for some reason he made a very brief report of the sayings and doings of the Society, while there was nothing to prevent his reporting everything said or done. He might have reported, word for word, the discussions or the papers read, or given a synopsis of either or both, and nobody would have objected. But it is said that near the close of the meeting the Secretary called attention to the fact that he had none of the papers read, and as he was responsible for them, he requested their return to his desk. It is said the reporter for the complaining journal had gotten them from their authors, who probably regarded him as the official reporter or proper custodian, and was leaving the Secretary without even copies of them. If this journal came so near getting all the papers, and yet through failure in reporting, fell short of even a synopsis of them, or of the discussions, it is not strange that it is vexed. Some things are vexatious; and we deeply sympathize, yet we expect that it will

be a long time before the societies will allow their papers to be carried off without their consent. The *official* report was not taken away by any private enterprise, but it was not yet written out or it might have been. A man carried off a saw-mill in safety, but when he returned for the dam he was caught by the owner who was as selfish as the Secretary of the society with the ancient by-law.

CORRECT.

"It is important that we know all, and investigators outside of the profession should be encouraged to aid us in certain directions. Do not believe in sitting down on them merely because they are outside of the profession."

That is the lately expressed opinion of a professional friend, and we are pleased with the sentiment. But we don't know of any disposition to *sit down on*, or in any way to discourage outside help, from whatever source it may come. But professed help from outside or inside must be allowed to stand or fall according to merit or demerit. There are no royal—no privileged helps in science. All are subject to criticism.

Societies.

"Wherewith one may edify another."

UNIVERSITY OF CALIFORNIA.

THE commencement exercises of the dental department were held on November 13, 1883, there being seven graduates named as follows: John Nelson Blood, Charles Boxton, Maria Angelina Burch, Edwin Overton Cochrane, Russel Hopkins Cool, Milton Francis Gabbs, William Edmund Price.

It no longer looks strange to see a lady's name among dental graduates. But we well remember when this was not so.

ANOTHER NEW SOCIETY.

THE Maryland State Dental Association was organized at the University of Maryland, October 18th, 1883, and the following were elected officers for the ensuing year: President, Dr. E. J. Smithers; Vice-President, T. H. Davy; Corresponding Secretary, Wm. A. Mills; Recording Secretary, B. M. Hopkinson; Treasurer, O. C. McCurdy; Executive Committee, Drs. B. M. Wilkerson, J. C. Uhler, R. A. Hungerford.

We are not informed, but presume it will meet annually, and we shall take pleasure in hearing of its prosperity, and in laying its valuable contributions before the profession.

A NEW SOCIETY.

THE dentists of Wheeling, West Virginia, have organized a society called "The Wheeling Dental Society." It is hoped and expected that it will grow into an active, energetic and useful State society. In addition to its Constitution and By-Laws, it has adopted the code of ethics of the American Dental Association. Its officers are as follows: President, Dr. C. A. Weingenter; Vice-President, M. Stout; Secretary, A. F. Gosmire; Treasurer, J. R. Surgison.

Wheeling was one of the centers of dental culture, at the time we came into the profession; and the disposition to let its light shine, seems still to exist. We hope the new society will live long and prosper.

Books and Pamphlets.

OBSERVATIONS ON THE USE OF BROMIDE OF ETHYL. By A. E. PRINCE, M. D., Jacksonville, Illinois. Reprint from the St. Louis Medical and Surgical Journal.

THIS pamphlet discusses the use of the Bromide as an anæsthetic for short operations, and as a Precursor to the Administration of Ether. The subject is well handled and clearly discussed.

Our Aftermath.

INCLUDE YOUR WIFE.—It is very well to say "I and my wife are one," (though perhaps it would be more modest to say "wife and I are one," but never mind this, if the first is not intended to be significant.) Really, do you mean that your and her rights are one? And the results of your and her work are one? And that you are mutual in your interests? If you have a partner at the office you share profits equally, though each each may do a different work. Is it so with your partner at the house? Yet perhaps she works as hard in her department of labor as you do in yours. Few of us would exchange our work for that of our wives. Have we vexations? So has she. Does ours produce nervous exhaustion? Hers more. Is ours confining? How much more hers! Do we sometimes complain of too many hours of work? Count hers. Does our employment require skill? The ingenuity she must display to fill well all her spheres, of wife, and mother, and servant, and especially of caterer to her often fastidious husband, is simply a marvel.

And yet, does she want five dollars to pay the grocer? "Dear me, what an expensive table this is!" Would she replenish her wardrobe? or do the children need new clothes? "Why, Jane Ann, you are always wanting something! Where do you suppose all the money is coming from?" Would she have an extra feather on her hat or a more costly lace for her neck? "Actually, my wife spends half as much for finery as I do for tobacco and beer!"

There are wives who are imprudent in spending money—no husbands, I suppose, who are spendthrifts? There are some wives who put by but little money, even if they have a superabundance—men, perhaps, are strangers to such a weakness?

It is a fine thing to feel that "wife and I are one." Of course, not one in every trait of either excellence or weakness, but so completely one in interest and welfare, happiness and responsibility, weal and woe, that the purse shall be one also. Sometimes the husband is the more able to economize and more prudent in spending, and sometimes this trait predominates in the wife. But at all times a mutual understanding and a conservative policy will soon convince each of the other's strong points; and a yielding to superior wisdom, grace or ability will equalize things. If there is affection, we shall soon feel that "wife and I are one," and then, in all our interests, plans and pleasures, we can include our "better half."—*Items of Interest.*

As dentists are men and their wives women, the above article may prove not unprofitable to professional families.

A WARNING.—The son of a Mr. Smith, of Fountain county, Indiana, died recently of pyæmia, supposed to have been caused by the introduction into the gums of septic matter, by forceps in the hands of a so-called Indian doctor, who attended the fairs last fall and extracted teeth in a very filthy and wholesale manner. The extracting was done *free* in order to draw a crowd, that said doctor might sell a worthless pain obtunder. Query: Is medical legislation needed in Indiana?

S.

COVINGTON, IND., January 4th, 1884.

A certain M. D. wrote a good deal of poetry for the papers. Some one wrote under his door plate the following:

"Thou essence of dock, valerian and sage,
At once the chief grace and pest of our age—
The worst that we wish you for all of your crimes,
Is to take your own physic and read your own rhymes."

Under this Mr. A. McG. wrote:

"The wish, in form, must be reversed,
To suit the doctor's crimes,
For if he takes his physic first
He'll never read his rhymes."

THINGS TO THINK ABOUT.—Great things are not accomplished by idle dreams, but by years of patient study.

They that do nothing are in the readiest way to do that which is worse than nothing.

Be happy if you can, but do not despise those who are otherwise, for you know not their troubles.

Every person has two educations—one which he receives from others and one more important which he gives himself.

It many times falls out that we deem ourselves much deceived by others because we first deceived ourselves. He who is false to present duty breaks a thread in the loom, and will find the flaw when he may have forgotten its cause.

If you are going to do a good thing, do it now; if you are going to do a mean thing, wait till to-morrow.

SLEEP whenever you feel like it. Sleep is one of Nature's calls for repair of body. Hunger is one also. Live on the ground as well as in the open air as much as possible. Inure yourself to weather and changes of weather. Human beings should not be hot-house plants.

SIMPLE MEANS OF OBTAINING LOCAL ANÆSTHESIA.—Dr. Cheize reports a case in which, wishing to remove an ingrowing toe-nail, and being without a spray producer, he covered the toe with a pledget the size of a crown piece, poured ether on it, and evaporated this by means of a pair of bellows; in five minutes anæsthesia was complete and lasted while the nail was removed, and the matrix seared with the actual cautery.

A MAN cannot do good or evil to others without doing good or evil to himself.

"Take your time," as the jeweler said to the customer who had forgotten his chronometer.

It is remarkable how much good can be found to say of a man after he is dead.

Too much gravity argues a shallow mind.—*Lavater*.

TO DISINFECT WATER FOR HYPODERMIC USE.—A sure but, so far as we are aware, little practised method for disinfecting water for hypodermic use is to boil it. It is not sufficient that the water be boiled when the hypodermic solution is made for the case bottle; it should be boiled on the spot. The requisite amount is put into a teaspoon, a lighted match is held under it, and the fluid is injected while warm. If the practitioner prefers, as many do, to make the solution p. r. n., the required amount of the drug or a pellet may be placed in the spoon, reduced to a powder—better still placed in the water and reduced—and the heat applied, the increased temperature favoring the solution. In this manner bisulphate of quinine may be used without any acidulous accessory, and without the unpleasant effects so often seen after hypodermics of quinine.—*Medical Record*.

ADVERTISING DOCTORS.—In this eager striving for notoriety rather than the just honors of the medical profession do we not discern the need of maintaining a high standard of ethical requirements? Abate in any respect our regard for the properties of professional life and see the consequences. Remove one stone and the whole edifice tumbles about our ears. Allow these forms of advertising to obtain a footing of the slightest tolerance and the newspapers will not have space enough to accommodate the multitudes eager to display their wares. What, then, will be the position of the medical profession?—*The Medical News*.

NEURALGIA TREATED BY THE TUNING FORK.—Dr. Rasori applies the tuning fork, while vibrating, over the course of the painful nerve. The sitting usually lasts about half an hour, and the patient is generally relieved without further treatment. He records his method in the *Cinn. Lan. and Clin.*

IODOFORM freely used as an antiseptic has been the cause of many cases of poisoning, eleven deaths from its use having been recorded by German writers.

CHARLES LAMB: I shall begin to believe there is some such principle as chivalry influencing our conduct, when more than one-half of the drudgery and coarse servitude of the world shall cease to be performed by women.

ANY man can wear a mask for awhile, but some time it will fall off and disclose his real self and character. The better way is not to put it on.

THE poet says, "In the world a man must be either anvil or hammer." He was wrong, however. Lots of men are nothing but bellows.

A NOTED physician says that nearly all women have smaller chests and trunks than they ought. Baggage-men don't think so.

LATIN is a dead "language," especially when an inexperienced drug clerk fools with it.

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Contributions.

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"A word fitly spoken is like apples of gold."—SOLOMON.

BACTERIA.

—
BY EDGAR D. SWAIN, D.D.S., CHICAGO, ILL.

[Read before the Central Illinois Dental Society.]

Mr. President:

THE tendency of the age, is undoubtedly to account for all contagious and febrile affections, as well as many chronic diseases, by the hypothesis of a specific microphyte, whose ravages constitute the generation, production and development of disease; and this microphyte has received the general name of Bacteria.

Observers and writers upon the possible, as well as positive action of this, so claimed great destroyer of health, are numerous, and were we to accept all the theories and vagaries as facts, we should at once be relieved from all further doubts as to the direction which our energies in the combat with disease were to be directed.

There, however, exists a great variety of opinions as to how far, and in what direction we are warranted in dropping all other

theories and the adoption of this, by no means new theory of the origin of disease.

In 1556 Hook is said to have observed, with an instrument which he had invented, (viz: a glass globe filled with water) organisms in putrid water; and some time later, when the Black Plague destroyed the population of Europe at such a terrible rate, examinations of the secretions and excretions of the victims showed them to be inhabited by myriads of minute organisms, too small to be seen by unaided vision; and to these organisms was attributed the spread of the disease, though no such experimentation was made to demonstrate it as is made to-day. Since then, the growth of the theory that all disease was to be attributed to similar organisms, has been of a slow and uncertain growth, up to, we will be liberal and say, ten years ago; however no very satisfactory results of experimentation had been given the reading public.

Previous to this time, theories only had been given those sufficiently interested to follow the published literature upon the subject, which was scant and unsatisfactory. About that number of years ago, however, most of you will recall the battle between the then recognized great scientific observers, "Bastian and Pasteur," which at the time created so great an interest in scientific circles. The difference between these gentlemen being whether the organisms now known as Bacteria were spontaneously generated or not. "Pasteur" taking, and I believe it is conceded to-day, proved the negative to be the truth. Since about this time the most scientific men of the world have given much thought and study to this subject. It is, however, only recently that any attempt has been made to divide or classify the Protophytes of past observers.

It is now generally acknowledged that they belong to the vegetable kingdom, and an effort has been made to divide these into classes, and give them a name and place in Microscopical Botany. The improved methods of research have been such as to make this possible; and Cohn has divided the more common and best known forms into four classes; these are such as are most easily demonstrated by the methods now best known by microscopical observers, viz.: cultivating and coloring by the Aniline dyes. The four classes are Spherobacteria, Microbacteria, Dermabacteria and Sperobacteria.

“Spherobacteria” are the smallest of all under the microscope. They appear as bright, ovoid spherules of scarcely measurable size. They are found in liquids and tissues arranged like strings of beads, and it has been demonstrated that it multiplies by elongation and transverse subdivision. The yeast plant is of this species. Microbacterius (i.e. the Bacteria proper) in cultivation first appears in the form of minute cylindrical rods, sometimes remaining at rest, but if the cultivating soil be to their liking, very active; and they are usually detected in all putrefying matters, moving forward, backward, in curves, rotating or oscillating.

Dermobacteria are similar in form, but varying in size. To this class belongs the wavy Vibrias.

Sperobacteria, as its name indicates, is spiral, or of corkscrew form, subdivided into two classes, long and flexible, and short, stiff Spherules, and it is claimed that the former are always present in the blood of patients suffering from relapsing fever, during the paroxysms. They are also sometimes found in the mouth and nostrils in health, or when catarrhal affections are present. They move with great rapidity and it is difficult to get a view of them when living, except when restrained in some manner.

Some of the more enthusiastic observers have attempted, and claim to have succeeded in subdividing each of these four species into several classes, and claim that they are able to detect the small pox, chicken cholera, anthrax, syphilitic, gonorrhea, diphtheritic, and other Bacteria, credited with producing special diseases. The general reader will, however, either become much confused in reading the experiments made, or come to the conclusion that there are several points not yet well established, from the fact that the experiments are as yet far from agreeing among themselves.

As to whether Bacteria are themselves infectious, whether they excrete or secrete, an acid or an alkali, has hardly been determined; and the question has been forcibly and pertinently put, whether the disturbances caused by inoculation and injections are due to the infectious quality of the Bacteria, or to an unknown principle in the fluid in which it thrives.

A French experimenter, whose name I have forgotten, claims to have demonstrated, by actual experiments, that none of the infectious Bacteria remain so after being thoroughly washed with water till the fluid has all been removed. All Bacteria require to

be supplied with certain definite nutritive substances, if they are to develop normally. The requisite nutriment is partly organic and partly inorganic. The inorganic components may be derived from salts containing sulphur, phosphorus, magnesium and potassium.

The necessary carbon and nitrogen are mainly derived from animal and vegetable matters. They have the power of assimilating nitrogen from ammonia, urea and nitre, provided some of the above mentioned mineral substances are present. None of the Bacteria can develop without water; but if the water does not contain the proper nutriment, they cease to develop and die outright, though it has been ascertained that many of them can exist without it for a time. Free oxygen is necessary to most of them, but instant death to others; while pure oxygen is said to kill all Bacteria at once.

The temperature also plays a very important part in their development. If lowered, it retards the vital process, if raised, these processes are increased, until a certain maximum is reached. Exposure to boiling water or steam, kills them after a certain length of time. Extreme cold has the same result. Some thrive in a fluid of acid reaction, while the acid kills those that require an alkaline reaction.

Recently a specimen of preserved milk, sealed by the investigator, Nageli, in 1872, was opened, and found to have a bitter taste. The milk sugar had been converted into lactose and dextrose. Before sealing, it was subjected to a heat of 120° Fahrenheit, under a pressure of from two to four atmospheres, for some time. This, however, proved inadequate to destroy the germs, or principle which was the occasion of the change.

Some observers claim that Bacteria have been observed to colonize by species; and if the nutriment matter was changed by the addition of certain chemicals or ingredients, one species would thrive at the expense of the others; while if changed again, the actively developing species became dormant, and one of the other colonies flourished instead. The fact appears to be, however, that the laws, as observed, governing their development and life, are so contradictory that nothing (or very little, at least) definite has really been determined beyond the fact that fermentation and putrefaction can occur only when the requisite kind of fungi is present; but it has not yet been determined that, under circum-

stances favorable, a fungi may not produce more than one kind of putrefaction or decomposition.

Nageli, however, affirms, and I do not remember to have read any other authority, that the character of Bacteria may be so changed by cultivation as to change its kind of fermentation, and that it no longer has the power to produce that fermentation in which it once thrived.

Much, I may almost say everything, is attributed to their presence, but when we consider how numerous the Bacteria are, that they exist everywhere, that we eat, drink and sleep them, so to speak, constantly, that all parts exposed to the atmosphere come in contact with them, that all wounded and abraded surfaces are covered with them, and that this condition has supposably always existed; we are led to question the correctness of all the theories attributed to them, as the cause of all the diseases which flesh is heir to, or as to their ability to transmit all these diseases from one individual to another. I might go on further and reproduce the results of experiments in which the Bacteria of certain diseases have failed to produce the same disease in animals, other than the same kind of animal from which it was taken, but should only employ your time in relating that which you can read as well as I.

I have gleaned this much about Bacteria, from all the different sources of information open to me, because I thought it would, perhaps, be interesting, and because I found it necessary in order to bring out some arguments or facts for or against what I shall have to say relative to my opinions as to the part which Bacteria play as the cause of the principal disease with which we are, as a profession, contending.

DENTAL CARIES.—We read most wonderful accounts about what some enthusiastic observers report to have seen Bacteria do in the field of their microscopes. I have read stories which so assisted the imagination, that I could see them gamboling in the carious cavity in a tooth, like playful pigs, fighting mimic battles over some sweet and tender morsel which had been secured in their work of destruction. Again, it has been explained to us that the system of destruction is to produce irritation and waste of the tissues by pressure, that one of them had been seen to first enter the tubuli; another crowded in beside this one, and a third wedged between the two, and so on, until soon the wall was de-

stroyed, and that thus the work of destruction continued. All these statements only tend to amuse those who have made an effort to study with the microscope the actions of the Bacteria, or anything else for that matter.

We have for consideration a theory that Bacteria, when present in great numbers, excrete or secrete an acid, or perhaps that their presence in a fluid causes some manner of change, which causes it to give an acid reaction. This theory may have been advanced by one who was willing to compromise between the theories of Bacteria and acid as the exciting cause of caries.

Then we have the opinion of one not entirely unknown as a careful observer, that Bacteria are not Bacteria at all, but simply fatty crystals. Prof. Smith claims to have succeeded in coloring the crystals with analine dyes, treating them precisely as Koch has done in his tests with this material.

The fact is, however, that there are very few men the world over, who are competent to speak with any degree of certainty upon this subject. Most of us do not know enough to successfully contradict advanced theories, or successfully support those we advance ourselves. In what I have said previously, we have learned that bacterial life is very precarious. It may be destroyed by too much acid or too much alkali; too much heat or too much cold, that a slight change in the constituents of the nutritive fluid may be death to one species and life to another; consequently we must conclude that the mouth, where all the above changes are effected and repeated a hundred times daily, must be a very unhealthy locality for Bacteria. That their efforts to become acclimated to the rapid changes occurring, would give them little time for their occupation of destroying.

Recently we have received the reports of experiments by Miller of Berlin, which seem to bear upon their face the stamp of careful conscientious work, to which I desire to call your attention; first to quote from his introduction, he says: "Microscopic preparations of carious dentine invariably show portions of softened dentine *free* from micro-organisms; that when micro-organisms are present, they do not appear to encroach upon the basis substance; that on the border between softened and normal dentine, it is easy to obtain tissue entirely free from organisms; that the boundary between softened and normal dentine, may, in most cases, be distinctly marked by proper reagents; while with few

exceptions it would be possible to separate the infected from the non-infected dentine; that enamel may be so changed by the process of caries as to become stained with analine dyes, without showing invasions of fungi; that pieces of normal dentine may remain for twelve months in contact with carious dentine, at the temperature and moisture of the oral cavity, without showing traces of caries. These and other statements we received from one known to be a careful observer; and he gives to us the experiments which he used, that we may verify, if we please, his statements. The article to which I refer is in the July number of the *Dental Cosmos*, for 1883, and certainly his researches are not very convincing that micro-organisms are the sole cause of dental caries.

Experiments, numbers three and four, reported by him, are easily verified, by placing in a bottle, pieces of normal, healthy dentine, covering with water, and adding a small amount of decalcified or carious tooth material, sustaining a temperature equal to that of the oral cavity. If desirable, other materials, such as are known to facilitate the growth of Bacteria may be added. The sound dentine will *not* be affected, though it lie for weeks in a decomposing, fermenting, bacteria-laden fluid. Miller has continued his experiment, number four, seventeen months, with neutral results, to the normal dentine, while the carious particles added have been consumed, apparently by organisms present.

In the same number of the *Cosmos*, an article read by Edward S. Niles, D.M.D., before the united meeting of Connecticut and Massachusetts Dental Societies, appears the report of a similar experiment, with this remarkable difference, that after two months the fluid was found to be inhabited by millions of spore, germs, micrococci and Bacteria." Miller was obliged to add new material every few days to keep the fluid inhabited. In my own experiments, every flask not reinforced with carious material at the end of six or eight days, became clear and odorless, and organisms could be found only at the bottom, in sediment, dead, and themselves broken up and decomposing.

In cases of alveolitis, where the edges of the process have been destroyed, and pockets formed, as described by Dr. Black, at Quincy, I believe, they are filled with pus, which, when taken from these pockets, is always found to be largely inhabited by the

organisms called Bacteria. Also in health, bacteria inhabit the secretions which find lodgment beneath the free margins of the gums, and between the teeth. So if they (or it) are the cause of caries in the teeth, why is it that we so seldom find them attacked at these points, where they are most numerous? This question undoubtedly will be answered by saying that the alveolar process is more to their taste, or that the bacteria found there is of a different species from that which destroys teeth.

It has been reported, and I have seen it once myself, that the fluid escaping from the pulp chamber of a devitalized tooth, when opened with the drill, is sometimes inhabited by bacterial forms. How many of us have ever observed caries in such a canal? Chronic cases do sometimes show the special end of the root to have been dissolved and roughened, after long contact with pus, but no caries. Again, all acknowledge several varieties of caries, the etiology of which have been fully studied and discussed, and experiments, in and out of the mouth, have satisfied many thinking minds as to the true causes.

Are we now without further and better proof, to discard the theories which have satisfied such minds and experimenters as Beal, Pasteur, Tyndall, Watt, and I think I may add our own Black; and adopt, in their place, those which even the most would-be enthusiastic believers are as yet in doubt about? Are we to believe that each different kind of caries is produced by a different species of Bacteria? Even the hard, black kind, where destruction is so slow as hardly to be observed, from year to year? Still we know carbonization to be progressing.

Do Bacteria carbonize? Death, putrefaction and fermentation, we admit to be the heaven of Bacteria; but why do they become so fastidious, after the death of the animal, and refuse that material in the bones and teeth, they so delighted in, in life, and thrive upon the organic material only?

Is it possible that the good Lord has thus infested his children with a parasite that will destroy our teeth, while in life and full of vital force, for the small amount of nutriment there to be secured, but upon our death, changes its appetite so soon, and will only accept the organic material for its food?

My belief of Bacteria is that it is a result and not the cause of disease. If it is the cause, what easier than to cultivate the

species responsible for each disease, and feed them, on the principle of * "*Similia Similibus Curanter.*" to the human race! All experimentation thus far has been to prove that Bacteria was only an evil producing results when present. No effort seems to have been made to show that they were a benefit, and of value to the human race, until Gradle advanced the idea that, perhaps, the heretofore unexplained phenomena of digestion in parts of the intestines where it was known no pancreatic fluid ever penetrated, that possibly Bacteria may be the agent through which a normal putrefaction is produced, furthering digestion and assimilation.

I have not felt myself warranted in discussing, in connection with this paper, any of the other theories of the cause of dental caries. Miller, though, I observe, favors the acid theory as the primitive cause, but does not yet deny that, after a receptacle has been formed for matter to collect and putrefy, Bacteria may be present. Your own knowledge of the oral cavity, its secretions, the filth, fermentation and decomposition in almost every nook and cranny, conditions which are in every way favorable to the development of Bacteria, and, as all admit, their existence, by the myriad, in these places; if they are the cause of the disease, is it not surprising that we see so many healthy teeth? Not long since we received from one of our observers in this direction, and a believer in the "Germ Theory," as the cause of caries, that analysis of carious tooth material showed the slightest possible chemical change, the lime salts as well as the organic principles being present in normal quantities. This, I understand, was an argument to prove Bacteria to be the cause, for, had it been produced by an acid, it was asked, would not the lime have been removed? Would not the matrix of animal tissue alone have been left, decalcified? The question would have led one to infer that the Bacteria, if the cause of caries, did not consume the lime salts, that their business there was not to produce disease, but to secure the necessary nutriment to enable them to live their short life, from the elements of which the organic material was composed. I believe man and human teeth are created for a higher purpose than to feed these millions of things which we are taught live only to destroy. The dog and other animals live upon Bacteria bearing nutriment. The horse, cow and other herbivorous

*Like things are cured by like.

animals are constantly taking with their food the spores of bacteria, which are the most tenacious of life, but are not productive of putrefaction (*Bacillus Sublitis*). It is always accompanied by spores which do promote putrefaction of the most offensive character. Still, cases of caries of the teeth, in either case, are not very numerous, especially with the canine race; and so we might continue, to an indefinite length, to show where bacteria exist numerously, and that if they were the cause of dental caries they certainly allow many fine opportunities to escape where they could, as the boys say, get in their work.

I have given but few of the many possible reasons for my non-belief in Bacteria as the cause of dental caries. The Bacteria is too old and the theories too new for our adoption, without further and more convincing proof. How far this theory, that all diseases are due to the presence of parasites is to be carried, and how it is to culminate, only time can answer. I feel safe, however, in predicting that the present craze will gradually die out, and before another ten years have passed, we shall be discussing new theories, with as much interest as we are to-day this one.

PRESIDENT'S ADDRESS.

BY DR. GARRETT NEWKIRK, CHICAGO, ILLS.

Gentlemen of the Central Illinois Dental Society:

THOSE of you who were present at our first meeting will remember what a scramble there was over the offices. Contrary to usual custom, however, it was to keep out and not to get in. Contrary to custom, too, there were offices enough to go round.

I thought I had a pretty soft thing, when having got all the other fellows into active and responsible places, I slipped off myself with an easy vice presidency. But I now conclude that no one knows just what he *is* doing when he accepts a vice presidency—look at Arthur.

I had fully determined to be present at this meeting and keep reasonably quiet, when I received a note from the president, saying that he could not be with us, and that I *must* take his place, address and all. I set to work at once, and had my course all

blazed out with my George Washington hatchet, for a little review of 5 years of dental discussion, when I got a letter from Dr. Moody, requesting that by all means I should say something of the special position, aims and objects of this society, according to the ideas of the original members. Naturally disposed to be obliging, I made an addendum on that line, and so come before you with a sort of double-headed, disjointed affair, with which you shall now be immediately inflicted.

I shall speak first of *SOME OF THE LANDMARKS OF A SHORT PERIOD*. It seems to me that one of the best things a student of dentistry could possibly do, would be to read up the back numbers of the leading journals for 15 or twenty years. The matter contained in these journals has been of a nature of a growth. Those men whose study and labors have been cotemporaneous with the issues of the dental press for many years, have themselves grown in theory and practice with the literature they have read. Crystallization has gone on slowly through all the mass. The young student of to-day can hardly get a firm footing on the ground occupied by his seniors, and which they have reached by plodding steps along a difficult way, without at least going back and taking a careful view of the old road. He may go on horse-back where others have walked or crawled, and he ought to go and review the beaten track as recorded in the periodical issues of the past. He may then be able to realize something of the difficulties that have been met and overcome—the streams bridged and mountains crossed. It is not enough that the student be introduced to conclusions—he ought to read the history of the processes that have led to conclusions.

These thoughts have been suggested by running over five or six late volumes of a leading dental journal, and observing what changes have transpired in as many years. From month to month the discussions have been active and sharp on a variety of interesting questions. It may be worthy of saying, at the outset, that *some* of these discussions have been carried on by men properly termed extremists; and it is your extremist usually who agitates, whether in political, religious or scientific matters. In fact, the world is greatly indebted to these same extremists. Having but one idea at a time, they are usually able to develop about all the length there is in it, while attempting to stretch it so much farther than it may possibly reach.

The rule is, when the dust has settled down and the chaff blown away that has been set whirling by your stormy agitator, conservative, sensible people are able to pick up a few kernels of wheat.

Five or six years ago a good deal of space was taken up, a good deal of talking done in the war upon amalgams made by those who *never, never* used them, i. e., "hardly ever." This discussion did good, by stimulating the friends of amalgam (who thought it had a place) to greater care and thoroughness in its preparation and use. Finally, the *extreme* goldites toned down somewhat, and the amalgamites learned to respect more the valuable properties of gold.

Then came the attempt to annihilate vulcanite, on account of its alleged poisonous properties in contact with mucous membrane. This attempt did not succeed except to cause greater care in its use and discrimination against certain forms. It also gave stimulus to a laudable desire to substitute better work wherever circumstances would admit.

Then celluloid came forward in a final struggle against rubber, but with the end of the Goodyear patents this material gave way, except that it still retained a place in the affections of a few dentists for use in special cases.

Then the contour-fillingites had sharp dispute with the separatists, and both claimed the victory; and the conservative rank and file said: "It is well to contour, and it is also good to separate—the question depends upon *conditions*."

Then came the promise of great things—the dawn of the millennium—when the *devil* of *deformity* should be chained. "*Regulation of teeth made easy*." But somehow, "auld clootie" still keeps loose. The beautiful and delicate machinery that should bind him hand and foot is permitted to lie upon the shelf, where it commands our most respectful admiration.

But the rank and file have been able to pick up many hints of things for practical use, and the whole question of regulation has received more of that general attention it so well deserves.

About this time we were astonished by the grand discoveries of the new departurists. Electricity was in the air, and we had a *great storm*. For a time it was feared by some, that all the metals, at least all that had a shade of *yellow*, would be melted and alloyed with oblivion. But the storm passed by while the

prophets of the profession stood in the clefts of the rocks. We have had occasional small showers since, but in the rainbow of promise, the golden hue retains its place with all its ancient lustre.

Next followed a dashing charge of guerillas on the sixth year molars. But little harm was done, however. The marauders were nearly all captured, and, with that magnanimity characteristic of our profession, we spared their lives, tried to forgive their sins, and told them to "go and sin no more."

The next year opened with a wet and backward Spring. Some of the dental farmers conceived the idea that wherever there should be a "*poor stand*" the best treatment for the sickly stalks would be to pull them out, medicate and then *replant*. After a free discussion of the matter, it was advised these fellows that in rare and extreme cases they might try the experiment, but as a rule there would be better promise of a "*stand*" if the stalks were left with their roots in the ground, as nature had placed them, and there tenderly nursed with prayerful hope.

Then attention was turned more than ever before to the methods of fastening artificial crowns, and these have not lost their hold upon general interest to the present time. Prosthetic dentistry also came to its feet, and insisted on the right to be heard. So everybody listened, but the most of us went off and forgot all about it. We were too much interested just afterward in the study of pericementitis, pyorrhea-alveolaris, dental legislation and education, and unable to cope with so many questions at once. The study of disease brings us back necessarily to that of organs in health. Abnormal tissues tell us we must find out what they were before disease attacked them. So pathology points to physiology, pathological anatomy and histology. Here we have been brought, and here we are to-day, waiting for further enlightenment on Bacteria, alveolitis, pre-natal influence and higher education, from some of the able representatives of our profession present.

With regard to appliances and tools, relating either to the mechanical department strictly, or to operative dentistry, we seem to have passed the active period of invention, nevertheless many little additions have been made to our armament, looking to a more perfect execution and finish of our work.

In concluding this part of my paper, I wish to say, in brief, that in my opinion, if there has been any one thing neglected

more than another in the college teaching of students, it has been that careful, thorough, systematic training of the eye and hand in those details that go to make up the best final result in work. All the study of all the books, all oral instruction, all mere observation of work by others, all the teaching of the schools, and all the degrees of the colleges, medical or dental—all these will ingloriously fail unless supplemented with nice, delicate, trained mechanical skill.

And now, by request, a few words as to the reason why of the CENTRAL ILLINOIS DENTAL SOCIETY, and its special aims:

This society stands at a point intermediate between the individual dentist and the State society. It exists, first, for the promotion of acquaintance and good fellowship among dentists who are neighbors in this portion of the State. Our work is so closely confining that we are not able to go from home very often, and were it not for a place like this we would seldom or never meet.

In many districts there are dentists who would, if acquainted, be mutually friendly and respectful, but remaining strangers are too often jealous and distrustful. Here is one place, at least, where distance does not "lend enchantment to the view," and clothe the dentist in "an azure hue."

The State society is a grand thing for all who attend and closely watch its surroundings. It is a good place to meet the leading lights of the profession in our own and other States; but it affords no great opportunity for dentists of a particular locality to meet and get acquainted. Many will not be there at all, and those who are may be kept apart.

When neighbors wish to get acquainted they meet in small companies or go to one another's house, not off to a big convention or the State Fair.

What is needed by the dentists in the various districts of the State is what we think we have made in the society whose third meeting we inaugurate to-day—a society large enough to be a power for good, yet small enough to insure individual acquaintanceship.

As we are not abashed by the immensity of our surroundings, we may each one put "the best foot forward." We may all be at our best, and perhaps, be mutually surprised at finding out what good fellows dentists generally are.

But there are good reasons aside from that of mere good fel-

lowship for the existence of our society, reasons that call on each dentist of central Illinois for his support and presence. The meetings of the State society are supposed to be devoted mainly to the considerations of weighty questions by weighty men, and there is not time, as it would seem, for the discussion of many small matters which, though small, are of importance to the working dentist. There are points in practice where we are bothered, worried—little difficulties that are quite discomfiting. We would scarcely think of presenting these before the State society, and yet we need the help that somebody can give us—a neighbor, perhaps, who, by a few words or a single demonstration, can unravel the knot in our ideas. These "*little things*" are "not to be sneezed at." We ought all to feel free both to ask and to give information on any point, however trifling it may at first appear. Moths, flies and mosquitoes are small things, but we may all remember how not many years ago these same little creatures made life a bore. Moths and bugs filled the room at night and strewed the floor in the morning. Flies were in the lamp and in the baby's eyes. Somebody had to stand at every table and cradle with a brush to make either adult or infantile existence tolerable. When with day's departure the flies settled down to the work of wall decoration, when the golden light was glinting on the western clouds, as we heard the first notes of the whippoorwill, the lowing of the distant herds, the squealing of the nearer pig, how anxiously we attuned our ears in the intervals of twilight hush, to the gentle, tender *feeling* music of the loving little visitor who sang but not to soothe; who, like the sexton of an old-time church, pricked up the sleeper and made him hear the unwelcome warning of the wrath to come.

So people suffered on, from year to year, till it occurred to some one to weave wire into a screen, and tack the screen upon a frame, and hang the frame with the door.

The little troubles that annoy us are not to be so grouped and vanquished by a single weapon. We must have something with which to meet and discomfit each particular difficulty at a stroke. "The weapons of our warfare are not carnal," they are of the sort we may each keep and use for himself, and yet freely give away. The possessor of an idea will generally lose nothing by parting with it at once, for the good of somebody else. He will be pretty certain, in truth, to receive a reflex benefit.

Again, this society has no standard of admission, except that

of a respectable character. Whoever practices dentistry under the laws of the State is entitled to membership here. Consequently, if there be any good in us or in our meetings, any one having an honest desire to be improved, may come and appropriate whatsoever he will.

"As iron sharpeneth iron so doth the countenance of a man his friend."

As sure as friction causes heat, just so sure we cannot meet here as we do and rub our ideas together without quickening them. Everyone will be benefitted.

Wherever a large body like the State Society meets, of necessity as well as choice, the majority must be observers and listeners. The body of the crowd sits in the amphitheatre, as it were. Every now and then, two or three or half a dozen step into the arena, have an argumentative tussle, or run a rhetorical race, and the rest look on with no thought of participation. But in this Society we hope to have no mere spectators, no amphitheatre. We expect to get some good from every member. This is a "free for all." We may all go into the arena with our coats off, and run any kind of a race, fast or slow.

In conclusion, gentlemen, permit me to congratulate you, and include myself with you in the congratulation, upon the auspicious opening and interesting programme of the third meeting of the Central Illinois Dental Society.

* DENTAL FEES.

TRANSLATED FROM THE FRENCH BY A. W. HARLAN, D.D.S., CHICAGO.

[By a member adherent of the Societe Syndicate Odontologique de France.]

We are not willing to ask this Society to fix a tariff of fees to be adopted by all, because it is only just and right that an opera-

*NOTE BY TRANSLATOR.—The one thing in England and France which has been the greatest barrier to the success of operative dentists is the system of fees, now, thanks to a few Americans, and many Englishmen, rapidly changing to our American method of charging for a service, its worth, not a customary and frequently inadequate fee. Even now many English dentists receive only one guinea for their largest filling, and in France the fee is twenty francs. This system of a certain fee for all operations has prevented many men from becoming skilled operators, because custom decreed that they should receive only \$4.00 or \$5.00 for the labor of two, three or four hours spent in contouring a tooth with gold. Of necessity, the French and English have been, and now are, larger users of plastics for filling, than we in America. All, or nearly all, of this on account of the customs surrounding the fee question. We think that the importation of a different method of charging fees will do more for operative dentistry in England and France, than many of our old world brethren may be willing to acknowledge. They have always received high fees for prosthetics—higher than we Americans, I believe.

tor, distinguished, and of the first rank, should receive higher fees than one of less merit. We even believe that it would not have such a mercantile sound if our medical brethren had none, as they, like we, have to be generous and charitable to patients too poor to pay for services, yet who are appreciative of our assistance. One cannot, for example, demand fees from a poor teacher as from a princess.

This being admitted, it is incontestable that it would be more pleasant for our clients and ourselves, if we all had a certain basis for our fees, a basis which would be just and equitable for our whole number. Operators of renown could double or triple the tariff, while practitioners more modest could say to their patients that a fee of two-thirds, one-half, or even a quarter, would compensate them.

Nothing is more painful to a man of feeling, practicing a liberal profession, than to be thought taking advantage of another, to pass as a *screw*, whose sole aim is to get money, and whose sole desire is to charge as dearly as possible for his services. We must, however, look at the other side of the medal. Daily a delicate patient will go to a busy dentist and will engage a series of sittings, which the practitioner will be obliged to refuse to others, who would have appreciated and well recompensed him for his services. The patient carefully refrains from asking in advance the fee per sitting, and when the bill is presented he cries at its exorbitance, and forces the dentist, at a considerable expense and trouble, to bring the case before the courts, with a chance of losing it all. According to our way of thinking, this is a shameful method of getting the best of a dentist.

An operator can labor six, seven, even eight hours daily, according as his health will permit; if he has ability, each sitting is retained in advance, and the practitioner necessarily refuses more appointments than he has time to engage. A patient who desires to have his name taken for an appointment has a perfect right to know the fee per sitting; but if he does not ask it in advance, he must accept the fee charged by the dentist, and ought to pay it without a murmur. If he does not pay, he causes a loss to the dentist, whose care he has received, and presents, frequently, the gain of a patient who would have paid for occupying the time.

A gentleman who dines at the *Café Anglais* has a right to

be exacting about the quality of the dishes, about the cooking—he can refuse a bottle of wine which has not an exquisite *bouquet*, but he cannot offer to pay the same price for his dinner that he ordinarily pays at a second-class dining house—it is higher priced.

Let us take an example. A client presents, who has an abscessed molar, and an enormous cavity caused by caries. The dentist removes the decay with delicate instruments, he treats the roots, and cures the abscess, at the end of one root or perhaps two.

All of this takes time, and the exercise of talent, and demands, of the one who practises skillfully, years of study. Then each root is filled, and afterwards the large cavity, perhaps with a good amalgam, or it may be that it is filled with gold (No. 4), 3 or 4, perhaps 7 or 8 sheets of gold.

Here is an operation requiring as much skill and address as is required for an amputation of a leg, and it takes a vast deal more time, not to speak of the preliminaries. If at the end of all the sittings, the patient slips 20 francs (\$4.00) into the hand of the dentist, and disappears rapidly, before he (the dentist) has time to speak of the inadequacy of the fee, he has robbed him the same as if he had taken his watch or other valuables.

This picture is incontestably true; but the patient will say, “you have previously filled teeth for me (which are good, these ten years), and you only charged 20 francs; I thought then that it was a fee easily earned.” This style of reasoning is not just, for the cavities then in question were simple, and each was filled at a single sitting, whilst this, of necessity, required five or six, and each was worth 20 francs—five seances, 100 francs.

Let us take another case: a child of eight is taken to a dentist to have a tooth filled with gold. This child is, perhaps, gentle—so much the better, for sometimes children are difficult to manage. In most cases they are worse than adults. Often the dentist will use up his stock of patience, and at the close of the operation he is completely exhausted. Then the mother, with a charming smile, will say, “It is half price for children, is it not?” thus showing little recognition of the service rendered, and less of justice; for generally the dentist would have preferred to treat two adults in the time spent.

Often the dentist will let them go, as it is distasteful to extol his worth, like the merchant who boasts of the quality of his merchandise.

There are many patients who, without reflection, make the dentist wait and wait for his fees, as if he did not have to pay cash to his assistants, for his materials, rent, etc., not to speak of the capital invested to procure his education. This is wrong.

There are, alas! we avow it with shame, dentists who cheat the public, in the most conscienceless manner, and with the boldest effrontery. They will say to a patient, "Madame, your plate will cost you 300 francs;" then, the plate done, and badly fitting, the patient hands out the 300 francs. "You are in error, Madame, they say;—It is 3,000 francs (\$600)." If the client complains, she is menaced with a process of law, and in order to avoid publicity, the victim frequently pays.

We do not pity such dupes very much, because had they consulted their friends, most likely a competent and well known dentist might have been indicated, instead of which they read the fourth page, seductive advertisement, which is always addressed to them, and thither they go.

It is so easy to have cuts and drawings of plates, etc., made by the *charlatan*, who says: "Look at these! they are worthless; come and see me; *I have a new system.*" The victim looks at the plate which she is wearing and compares it with the cut, which it closely resembles, and straightway says: "I must go and try the new *system*. Is it necessary to add that the new plate is a poor copy of the one previously worn, which will not serve her any better, but which has cost her, by the juggling, ten times the price agreed upon.

We repeat, we do not pity such dupes; for these same persons doubtless often decline to go to a modest man who doesn't boast, but whose talents are praised by his clients. They quit, many-times, the dentist, whose position is unassailable, for the robber who has to vaunt his wares, at so much per line. They pay for it, and suffer, but so much the worse for them.

This is regrettable; but let it be admitted, that there are patients who take advantage of a dentist in taking *seances* from practitioners, when they have not the means to pay, in place of consulting those whose fees correspond to their purses. Let us admit also, that there are dentists (?) who plunder each client, who skin them completely, and do not ever wish to see them again, counting on that quality of unextinguishable human stupidity which takes the most absurd utterance, as solid evangelical

truth, to keep them away—admitting all this, it is, we believe, a good thing to have a fee bill.

A patient would then ask M. le Dr. X. if he operates by the tariff of fees, “No, Monsieur, my fees are double, because my clientèle is already larger than I can attend to; but here is a list of my confreres who will treat you well, at the regular tariff, and some at even less than the tariff.” We admit that the word tariff displeases us; it would be so delicious to never hear the word money; to have clients who never alluded to it, (some don’t) but to have those who recompense liberally for services rendered. Such people, wittingly, or otherwise, place their money where it will do the most good, for in spite of himself, the operator, who feels that he is appreciated and will get good fees, redoubles his dexterity and care. In spite of him, let us say, for everyone recognizes the fact of the generosity and disinterestedness of the *Corps Medical*, in general, and our specialty in particular.

We all labor gratuitously, very often not thinking of the fatigue imposed on ourselves, or the first cost of materials we are using, etc. The sacred fire exists in us, which no one will deny. But in looking around us, we see many clever and unassuming practitioners, nearly ready to depart hence, from the severity of their labors; and it occurs to us that it would be preferable, *if* a great many dentists of wide reputation who have an overplus of work, laboring eight or nine hours per day, when for their health’s sake they should operate but four or five, were, let us say, to tell their clients that “this is the fee that will compensate me, and for it I will give you my best care and whole attention. If it does not suit you, here is a list of names from any one of whom you are certain to receive their best care.”

But, my readers will say, what kind of a fee bill do you propose?

Consultation (\$4),	-	-	-	-	-	-	20 francs
Extraction,	-	-	-	-	-	-	20 “
With nitrous oxide,	-	-	-	-	-	-	40 “
Fee to physician for administering the gas,							20 “
Simple gold filling,	-	-	-	-	-	20 to	50 “
Amalgam or plastics,	-	-	-	-	-		20 “
Treatment of tooth, etc., each sitting,	-	-				10 to	20 “
Regulating plate,	-	-	-	-	-	50 to	100 “
Each sitting for trying in plate, articulating, etc.,						20	“

A simple pivot tooth,	- - - - -	50 to 100 francs
One artificial tooth on plate,	- - - - -	50 to 100 "
Two " teeth "	- - - - -	80 to 150 "
Three " " "	- - - - -	100 to 200 "
A partial plate, more than three teeth, per tooth,		30 to 50 "
Entire plate, upper or lower, suction,	- - - - -	250 to 500 "
Full set, complete,	- - - - -	400 to 1500 "

This exhibits a list of the simple daily operations. When there are complications, (regulating), the dentist should tell his patient in advance.

A fee list as above, having no name on it, could be supplied to every practitioner, for his operating room. He should have the privilege of modifying it at will. Let us show the working of this fee bill by example: A patient has a cavity in a front tooth, one in the crown of a molar, simple cavities, cavity in bicuspid, with abscess. Here is the form of a bill which should be presented:

M. X., Dr., to M. B., Dentist.

One filling—incisor,	50 francs.
One simple filling,	20 "
Five sittings treatment of abscess,	50 "
Filling abscessed tooth,	20 "

140 francs.

Here is a bill very moderate. If the patient, in place of consulting a member of a liberal profession, had employed, during the same time, a Parisian workman, a locksmith, for example, the statement might have read otherwise.

We are giving our ideas for what they are worth. We do not sign our name to this article; for this is not a question which concerns one dentist more than another, or one journal more than another. We make the first dive into this open sea of fees, leaving it to those more competent as financiers, to solve the fee question, and not, as many would say, leave it to the chamber, (society). The gentlemen composing it have more to do, and we take the initiative in depriving each member of the chamber of that privilege, in order that all may labor without jealousy, without the spirit of faction, and with good will.

It is said that it is proposed to offer a prize for the best paper

on fees presented to the chamber. We are heartily in favor of the idea, and hope some one perfectly competent will take our modest effort, boil it down, add to it, and develop it in such a manner that he may gain the prize. However, only scientific subjects should receive precedence in competition.—*Revue Odontologique*.

THE HERBST METHOD OF FILLING.

TRANSLATED BY G. V. BLACK, D.D.S., JACKSONVILLE, ILL.

[Annual Meeting des Verins Schleswig-holsteinischer Zahnärzte in Bremen, June 3d & 4th, 1882.]

[Continued from page 73.]

HERR HERBST spoke as follows: It has now been three years since I began to publish my methods to the profession. That my efforts have been of much use I will not say. I will say, however, that I have been striving for a principle by which to reach, through the simplest means, the greatest good. I am sorry that it is not possible for me to demonstrate my principal invention, my system of filling with gold before this assembly, I must therefore call upon witnesses who were at the meeting in Frankfurt A. M., and saw my work at that time.

In the month of December I will open a free course of eight days to which every one who may be sufficiently interested can have admittance.

The great ability of the Americans, so often held up to us as worthy to strive after, is grounded strictly upon their gold fillings. I believe I have, so far as it has been possible for me, striven to show what constitutes a good gold filling. I am now able to make gold fillings in a much simpler way than was possible by former methods. There are many here who have been acquainted with my methods for some time past; and it would please me, if any one has experimented in this direction, to hear his opinions.

DR. FLÖRKE.—As the Herbst method has been so much talked about, the idea may be awakened in the public mind that he (Flörke) could not operate as well as Herbst. For this reason it becomes his duty to oppose the spread of this notion whenever and wherever he can. One would hardly suppose that in this somewhat warm contention nothing of jealousy or ill will

would be raised. People will also believe him, that he has tried this method, and that he must declare that it is by no means so easily carried out as it is often said to be. With this, as with the older method, a long course of drill is necessary in order to become proficient. I deny, however, that the Herbst method possesses anything which should recommend it over the older method. It is said the work may be done more rapidly. I can bring before you gentlemen who can fill as rapidly by the old method. Herbst claims for his fillings a greater solidity. A filling could not be made more solid than by the old method, if the gold were melted and poured into the cavity. In a gold filling it becomes evident that the gold, leaf upon leaf, becomes absolutely solid and united together. Herbst throws a mass of gold into the cavity, sets several large pieces in together (after the wedge system), therefore, his fillings are not solid. If he puts them in, one by one, they will become hard and brittle. Fillings should not become so hard that one cannot cut them with an excavator. I have seen very beautiful fillings from Herbst; but how were they made? Perhaps after his method, but they were malleted afterward. It has also been said that the Herbst method is easier, and less unpleasant for the patient. I will bring you patients who, in the manipulations by this method, have had to bear a very unpleasant heat developed by friction. When it is said that Herbst now makes contour fillings by his method, that is no proof that it is better than the old, well tried method. We will not be able to judge rightly of this matter for years. American fillings remain good for thirty years. Have you seen three of Herbst's fillings that have remained so long? By the Herbst method the filling material is not evenly condensed in all its parts. When you press to one side, the gold will be spread apart, holes (*Locherung*) will occur at the other side. By the American method, fillings are, certainly, built slowly up; but I contend they are more solid and answer all purposes.

MENTHEU.—The object of our coming together is to learn from each other, to get nearer to each other personally, and, by union of effort, to reach the highest development of our specialty. When we see, here in Bremen, two such prominent colleagues maintaining two systems so different, it is quite possible that those who view the strife from a distance, may suppose that it is undertaken from personal motives. However, I hold it to be my

duty to express my thanks to Dr. Flörke that he, in spite of the apparent danger of being laden with a false odium, has possessed sufficient courage and confidence in his convictions, to speak out, in an objective way, his thoughts in the presence of his opponent. On the other hand, I must confess that that which Herbst has recently accomplished with his new system has greatly surprised me. He does not depend upon his own utterances as sufficient testimony, but rather upon the utterances of colleagues who have heretofore manipulated according to the American system, but now cannot sufficiently praise the Herbst method, and know nothing of the difficulties brought forward by Dr. Flörke. He calls upon Dr. Nicoli, who is perfectly convinced of the usefulness of the Herbst method, and has adopted it in his practice.

If heat results from heavy rubbing of the instrument, and causes pain, then the rubbing should be lighter, so that too much heat may not be developed. (FLÖRKE.—That heat is developed I have heard from Herbst himself.) Although I have recognized the ability of Dr. Flörke with thanks, I shall still not refrain from upholding the discreetness of colleague Herbst, who says, To-day (not heretofore) I am ready to fulfill all just requirements with my method.

DR. PETERMANN—Knows prominent dentists who maintain the principle of filling with gold only. Such persons may be very skillful in filling with gold; yet they are not good dentists. The problem for the dentist is to maintain the usefulness of his patients' teeth as long as possible. There is a large number of teeth in which this is not possible with gold. In such cases he would use cement. He also makes gold fillings after Herbst's method. As every new method is improved in time, so it has been with this. At first a very rapid rotation was recommended, but now slower rotation is thought to be better. When he first tried the method, to speak plainly, he could not succeed with it; and if he had then said, this method is good for nothing, he would have blamed the method instead of his want of skill. Each method of operating must be learned. Dr. Nicoli now fills entirely by the Herbst method. Langsdorff speaks of it in the highest praise.

In Frankfurt, A. M., we had many opportunities to judge of the fillings. They are very solid. He himself had one tooth

filled; and the heat was not noticable. Yesterday Herbst made a very large and difficult filling in the mouth of a skillful practitioner, in the presence of himself and Colleague Baden. It was a contour filling, in the first left superior molar. By the common method the filling of this tooth would have been extremely difficult, if not impossible. By the Herbst method, it was easily and advantageously accomplished. The side walls of the cavity were very shallow; and by the old method it would have been necessary to make very deep undercuts for retention. Herbst placed a matrix between the cavity and the neighboring tooth, and made it fast by wooden wedges and cotton, and, in effect, changed the approximal cavity into a crown cavity. The filling, which was made in a very short time, was very solid. While Herbst was filling he asked the patient often if the heat hurt him, and always received 'no' for answer. Herbst did not rub the filling continuously, and therefore did not develop much heat. The most common failure which will be made in this method, is to rub the gold to an even surface, and polish it so that the next layer will not cohere. He himself thought at first that by this method the layers of gold might be brought to lie very solidly upon each other: but that there would be no cohesion. He had convinced himself that such was not the case. There occurs on the surface of each layer little elevations and depressions, (felt-like), in which the succeeding layer unites, (berfilzt). It is very easy to understand how this felt-like surface is produced, when one has the opportunity to see Herbst at work. He removes any brilliant polish that may appear quickly and certainly by rubbing it; the gold becomes rough (rauh) again, and the next layer adheres to it. I regard the Herbst method, as I have now learned it from him, as an improvement over the old.

The Herbst fillings are more solid and their adaptation to the walls of the cavity is very perfect, because they are rubbed perfectly to them. This, done with the machine, is naturally more certain and better than with the hand. And further, the Herbst method is more rapid; this, however, is of little worth, and besides, it is easier to do. The filling made my Herbst yesterday was closely watched by him (Petermann) and Baden. He took a plugger several times and tried to force it into the gold, but could not. The filling was good in every respect. Just before the completion of the filling, Herbst discovered that one of the cusps

was not built high enough. As quick as a wink the polish was removed, and a small piece built on. He (Petermann) tried to spring this addition off, but found it impossible. As to Dr. Flörke's question, had anyone seen fillings of thirty years standing from Herbst, it answers itself. This plan is only five years old, therefore we cannot ask for such proof.

DR. FLÖRKE.—He would not hold back on account of the accomplishments of Dr. Petermann, for whom he had the greatest respect. Petermann possesses, certainly, a name in matters pertaining to dentistry; but he was astonished to hear him say, of the cavity filled by Herbst, yesterday, that by the old method, very deep undercuts would have been necessary. He asks now, how does Petermann suppose the Herbst fillings are held fast. Farther, upon what does he base his assertion as to the great solidity of these fillings. That fillings may be made in this way he has not the slightest doubt; but how is it with their durability? How is it that he stated that here a filling, without undercuts, will hold more firmly than such made by the American method with undercuts, pits, etc.? It is no difficult thing to make gold stick to an ivory handle; but to stick, and to hold fast, are different things. The fastening of a gold filling can never be so good without anchorage as with it.

DR. PETERMANN.—He did not intend to say that no means should be employed for the mechanical fastening of the gold. When one has only a flat dish shaped cavity before him, no filling can remain firm without farther support. The use of retaining points in filling is, however, very generally overdone. It is not at all necessary that large pits be bored on all sides. With the Herbst method, a couple of grooves cut with the excavator are sufficient. In the filling of yesterday the principal point was that Herbst converted the cavity to be contoured into a simple crown cavity by the use of the steel matrix, and in this way rendered it possible to make a contour filling by his method. The Herbst fillings he believed were more compact, because by the use of the machine, we obtained a more effective pressure. * * * * *

—*From the Correspondenz Blatt für Zahnärzte.*

I saw one excellency was within my reach; it was brevity, and I determined to obtain it.

FILLING ROOT CANALS.

BY C. W. SPALDING, D.D.S., M. D.

[Read before the Central Illinois Dental Society.]

WHEN the pulp of a tooth has from any cause lost its vitality, the necessity for its removal preparatory to the operation of filling the root canal, will probably not be questioned. But the total removal of a devitalized pulp is not always an easy matter; on the other hand it is sometimes quite difficult, and the enlargement of the canals is occasionally necessary for its thorough accomplishment. The instruments commonly employed for clearing the canals are broaches, either plain or barbed. The raising of barbs upon a broach so much increases its diameter that it is then too large to pass into any but the larger canals. Consequently, for general use, the plain broach is our chief reliance. A few fibres of cotton wound obliquely upon the broach assist in the entanglement of the tissue and vessels of the pulp, and aid in its withdrawal. As a necessary prerequisite to success, the canals must be effectually cleansed previous to filling.

One frequent source of perplexity in the thorough accomplishment of this work, is the removal of an unkilld remnant of the pulp, near the extremity of the canal. It has many times been said, that the substances usually employed for the devitalization of the main body of the pulp, are inapplicable, if not unsafe here. Such, however, has not been my experience, and I do not, after thirty-four years' practice of this operation, recall a single case where any inconvenience has followed the application, deep in the root canal, of the escharotic usually employed for the devitalization of the body of the pulp. Of course the quantity used should be proportionate to the bulk of the tissue to be acted on. If a broach which has been found by trial to pass readily into the canal to the sensitive point, be several times dipped into the dry escharotic powder, and as often carefully carried down the canal, a sufficiency will be brought into contact with the undestroyed part, and complete devitalization of the contents of the canal will follow.

Assuming that the canals have been properly prepared, the next thing is the choice of the material to be used as a filling.

My experience covers the use of nearly all the substances that have been recommended for the purpose, including gold, tin, wood, whalebone, gutta-percha, shellac, oxychloride and oxyphosphate of zinc, and probably others that I do not now recall. All, I believe, except cotton. Cotton and creosote I have long held in such aversion, arising from the foul condition of the hundreds of root fillings of this kind that I have taken out, that I have never attempted their use.

At the beginning of the year 1849, I used gold—gold foil. This was folded into very narrow ribbons and then cut into short pieces, and these were carried into the canals by means of slender, somewhat flexible steel points, small enough to be carried up the canal nearly or quite to the terminal foramen. These slender instruments, not being reduced to an absolute point, were capable of carrying a short bit of the ribbon, say a line or two in length, into a canal and condensing the same at its extremity. To fill a canal in this manner was a slow, yet tolerably certain process, and when carefully done, the results were usually satisfactory. Afterwards the use of gold foil was modified by winding cone-shaped pieces upon broaches, allowing the point of the wrapping to cover the point of the broach, and carrying the gold into the canal by the aid of the broach. When in place, a reverse motion of the broach unwinds the wrapping, and the withdrawal of the broach leaves the gold in a favorable condition to be condensed laterally and vertically, by the introduction of a slender whalebone point by the side of the somewhat loosened wrapping of gold. This method has the advantage of great facility, but in its results was found but little more certain than the former. Of late years this second method has been rendered more certain by the addition of the solution of gutta-percha or of shellac. If the latter is chosen the mixture should be quite thick—almost buttery. After the broach has been smoothly and firmly wound with gold, dip the point lightly into either of the above named solutions, and proceed to pack as before described, the object being to allow the gutta-percha or shellac to fill the interstices which might arise from an imperfect packing of the gold foil.

That method of root filling is to be preferred which most positively assures the complete filling of the canal, with a material unaffected by the influences to which it is necessarily subjected. Canals may be, and are filled with gutta-percha or shel-

lac solutions alone; but I regard such fillings as inferior to those just above described. In the canals of lower teeth I esteem oxychloride of zinc as preferable to any vegetable substance, but its use should be confined to the inferior teeth, on account of the uncertainty of making a complete filling in the upper jaw.

The use of soft gold wire, as practiced by Dr. W. N. Morrison, of St. Louis, is, I think, one of the best methods practiced or proposed. Its strongest recommendation is its positiveness; the wire may be tried and withdrawn and reduced, or flattened, or otherwise changed, until it fits the canal tolerably well. It should then be luted with the gutta-percha or shellac solution, and then driven well home into the canal.

There is an element of uncertainty, greater or less, in all known methods, and in choosing from the various ones now practiced, that one should be selected which promises the most positive results. Perhaps all will not succeed equally well with any one. When the operation is not successful, it is often, but not always, the result of an imperfect closing of the canal at its apex. Sometimes the operation fails not from any defect in the filling, but from an unhealthy condition at or surrounding the apex of the root. This being external to the canal could not be affected by the character of the filling.

DISCUSSION OF DR. SPALDING'S PAPER.

DR. CUSHING.—I have listened with a good deal of interest to the reading of this paper. Dr. Spalding is possessed of a manipulative ability that is peculiarly his own. There are some things that he seems to be able to do that nobody else can do—that he cannot demonstrate, or teach anyone else to do as he does them. One of these is the ability to fill root canals with gold foil with a comparatively high degree of success. But I do not believe that his method is the best method for anybody, not even as practiced by himself. I am very certain it is not the best for us, nor for the ordinary practitioner. I do not believe it is possible to fill the roots of teeth in any case, with gold foil, or wire, or both, as perfectly as they may be filled by other means. If it is not possible under the most favorable conditions, what shall we say of those cases where the canals are small, tortuous, and difficult of

access? There are canals where the finest broach cannot be made to pass. Again, there are canals that are funnel shaped at the apex of the root—much larger there than at a point, say the fourth of an inch from the end. I should like to know how any one can pack foil to seal such a canal. How can he *know* when he has it filled?

There has never yet been discovered anything for filling root canals that, in my judgment, is equal to the gutta-percha and chloroform mixture. With this properly employed, one may be reasonably certain that he has hermetically sealed the canals, and he can demonstrate satisfactorily that this *may* be done by using teeth out of the mouth. I have filled roots with fine canals, and even ramifications so small as to be imperceptible to the eye, with the gutta-percha. I know of no other filling substance which will follow out the smallest channels in like manner, and it is an innocent substance. If you should happen to overfill, if any of it is passed through, its presence is non-irritant—the tissues endure its presence, and no harm results.

Dr. C. related a case where the mixture had followed the path of an old sinus till it had appeared externally through the gum, but with no unfavorable consequences. He then described his method of employing it, pumping it up to the apex with a broach slightly wound with cotton, not caring even if a little should pass beyond the apex.

Dr. HARLAN.—I fully endorse all that Dr. Cushing has said as to the impossibility of filling root canals perfectly with gold foil, or gold wire; and my experience fully bears out the good opinion of the gutta-percha. My method of using it is slightly different from his, in that I use the gutta-percha cone, dipped in eucalyptus, after I have pumped the mixture in very much as he does.

Dr. SWAIN.—I have taken the pains to examine a good many teeth out of the mouth, making sections of the same throughout their entire length, to ascertain the characteristics of the root canals. The canals are often tortuous, flattened, or constricted. There is very often a stricture at a point half way or more toward the apex, from which the *canal* widens considerably, giving us the funnel shaped opening mentioned by Dr. Cushing.

Dr. Swain illustrated these conditions on the board. In answer to the question as to whether he ever enlarged the strictured

canals, Dr. Swain said: "Yes, if the canals are so small as to make it difficult or impossible to pass a broach, I enlarge with a Gates-Glidden drill, simply through the stricture. In filling, I use a small, fine-pointed cone of gutta-percha, dipped in oil of eucalyptus, and carried to its place on the end of a broach.

DR. TAYLOR desired to call attention to a point he did not remember to have seen mentioned lately—one that he esteemed of a good deal of importance, namely, the benefits to be gained by leaving the canals as nature had finished them, unmarred by burr or drill. The walls of one of these nerve canals, under a magnifier, exhibited a surface polished to the most perfect degree of smoothness, thus forming a natural channel adapted to the easy flow of a semi-fluid filling. Whenever an instrument is touched to these surfaces, however, they are at once so roughened as to impede, rather than assist the passage of substances. Hence, we should, as a rule, be content with removing the debris from the canals.

DENTISTRY.

BY DR. J. B. TULLIS, OF TEXAS.

EACH business and enterprise has an object before it, which it proposes to accomplish. The end to be attained should be laudable, honorable and conducive to the good of our country and people. The object of dentistry should have before it the preservation of the human teeth, the relief of those suffering from defective teeth, and the proper treatment of those diseases common to the gums and other parts of the mouth. Also the making and fitting of artificial dentures for those who have been so unfortunate as to lose their natural teeth. We are apprised of the fact we have laid a broad base, and to elaborate fully would fully require volumes to treat of all the points mentioned above. We shall only make a few practical suggestions. We should, as far as possible, attempt to regulate and preserve the deciduous teeth until the proper time for their removal to give place for the permanent teeth.

At an early period of time, we often see the deciduous teeth coated with a foreign substance, and thereby, the gums are inflamed, and the secretions cannot be healthy, and the building

material of the entire system must be affected more or less. The dentist, as far as he can, should give advice to parents on the propriety of keeping the children's teeth clean. The decay of the deciduous teeth should be filled with some plastic material to preserve them until the proper time for their displacement. Much pain to the child can be thus avoided, and, in many instances, the arch will be more perfect, and there will be less irregularity of the teeth. We know it is a difficult work, but few apprehend its true importance and act accordingly. We should, however, as far as possible, give due attention to this subject. Having done so, we will advance to the permanent teeth with their surroundings.

If they were properly cared for and regulated, we would see fewer decayed, and more beautiful teeth. In the department of repairing the decayed teeth by filling we enter a wide field, where all our learning, skill, patience and perseverance will be called to act their parts to assist us. Different methods have been suggested, and employed in this grand work. Also different metals, metallic and plastic materials have been used in the various modes of filling defective teeth to preserve them, and still they decay. Care should be taken to keep the teeth clean, the gums healthy, and as soon as we see the inroads of decay, immediately they should be carefully filled with the best material and in the best manner to accomplish the object of saving the tooth or teeth from further decay at this point.

We find men eminent for learning, skill and experience differing very widely as to how the work should be done, and as to the material to be used for filling. As a general filling material we prefer gold. We are not a great stickler as to the form, whether in pellets, cylinders, rope or ribbon, or any other form preferred by the operator. First prepare the cavity properly, introduce carefully the material and force to the walls, and consolidate well as the work proceeds; and if a sufficient quantity of material be used and welded together and finished nicely, we will have a good stopping. That is what is wanted—good work; and good results follow. In the preparation of the cavity it often occurs, by the free use of the engine, too much tooth-substance is cut away, in order to present a large gold filling. Young men often do this by the free use of the engine.

In introducing the gold, many rely on the mallet for the entire work, and you will hear the word of command hard!

harder! as if in response to the pain of the patient. The engine and mallet have their places; but too much is expected from them. Our hand trained can do what machinery can never accomplish. Many a good tooth has had its life beaten out by the mallet. A good gold filling will save a tooth; and that should be our object daily. There are some men who think that amalgam is the best filling material, and it should be freely used. Good amalgam properly put in will make a good stopping, and that is what is wanted to save the teeth. The judgment of the operator should decide in all cases what is best to be done, and he should do it faithfully. Many teeth have been saved by the use of amalgam, when gold would have been a failure in the hands of an inferior operator. There are many teeth filled with amalgam and other plastic materials that have done good service for years. The same care should be taken in the preparation of the cavity for any plastic filling as for gold. A man that can make a good gold filling, can make a good amalgam stopping. It requires time and work to make any good filling. We should try to save all the teeth. They were given to keep and use, and we should not be in a hurry to trade them off for some made by man, mounted on rubber or celluloid, as they are more used than any other base now.

Much pains should be taken in putting in artificial dentures for those who have been unfortunate in losing the natural teeth. The field of dentistry is broad; and while much has been achieved in all its departments, much more remains to be done. Let all try and improve on the past, and go forth into new and unexplored departments, and show that we are workmen worthy of our high calling, and let posterity rise up and praise us for our good deeds, and the benefit we have been to our race, when we are on the other side of the RIVER.

ROBINSON'S FIBROUS AND TEXTILE FILLING FOR TEETH.

BY TRUMAN W. BROPHY, M. D., D.D.S., CHICAGO, ILLS.

[Read before the Central Illinois Dental Society.]

WHEN this metal, or rather alloy, was introduced to the profession about two years ago, by Dr. J. A. Robinson, of Jackson,

Michigan, who invented it, there were many expressions of doubt as to whether it would be as valuable as represented. While two years is not long enough to thoroughly test any filling material, we are enabled, by close observation, after the lapse of that time, to form a pretty accurate opinion as to what we can expect to accomplish with it. It is now believed by many of our better operators to be one of the great discoveries in dentistry. This alloy has, in its short history, gained an important place among filling materials. Indeed it possesses qualities not to be found in any other material with which I am acquainted; consequently it can be used by the majority of operators in the filling of certain cavities with better results than can be obtained by the use of any other material; and when we consider the ease to both operator and patient in using it, as compared with the use of gold, it would seem to commend itself to all. I have said it fills an important place in dentistry; but I do not believe it to be equal to gold, yet there are cases in which I believe it to be superior to the latter. Among these may be mentioned the following: Children's teeth, not only the deciduous, but the first permanent molars, previous to about the twelfth year. In a very large majority of cases it is necessary to refill the first permanent molars which have been filled before the twelfth year, hence to insert a gold filling which involves the expenditure of more time than to fill with Robinson's alloy, is to subject a child to unnecessary fatigue and pain. Besides, a child upon whom tedious operations have been performed, holds a dentist in such dread, that it is with great difficulty that he is induced to undergo subsequent operations. Another class of cavities in which I regard this alloy as well adapted is in approximal surfaces, especially those cavities which dip deep down beneath the gums, and thereby make the adjusting of the rubber difficult and painful.

In cavities such as these, the base may be filled with Robinson's alloy, to a level with or a little above the gum, keeping dry by the use of napkins, and then the rubber dam may be adjusted and the masticating surface filled with gold. There may be some objection to thus using the metals in union, but I have yet to see any evil effect resulting therefrom. The pluggers to be used should be deeply serrated, and the filling malleted. Presuming the physical properties of the alloy to be familiar to you, I omit a description. The surface of a well condensed Robinson alloy

filling is hard and bright; not, however, as hard as gold, but much harder than tin. Large pellets should be used; and with a little experience we learn to pack them with positive assurance that the cavity is well filled and *will not leak*.

In most cases of recurrence of caries upon the approximal surfaces of teeth, it takes place at the margin of the filling nearest the gums, and this is generally believed to be due to the imperfect adaptation of gold to these margins. Now, inasmuch as Robinson's alloy can be so easily and thoroughly adapted to any cavity, I am of the opinion that more teeth would be saved if a layer of this metal were placed over the gum margin of all deep approximal cavities, and the filling finished with gold. Thus I speak briefly of this metal, believing that with it we may be able to curtail, in a measure, those long and wearisome operations, and thereby the enormous expenditure of vitality on the part of our professional brethren, as well as to reduce the fatigue to patients, and furnish them with as good, if not better operations.

A FLOURISH OF TRUMPETS.

BY W. F. MORRILL, D.D.S.

THE career of the dental practitioner is occasionally beset with an effusive period in which there is a disposition to flourish trumpets, so to speak. It is an exuberance of spirits usually beginning shortly after commencement exercises are ended, and when practice has begun. The public is wholly ignorant of the store of professional knowledge which has been maturing and is now ready to be precipitated upon toothless mortals. Nothing is wanting but opportunity. The diploma, with its peculiar text letters, neatly framed, is hung conspicuously near the operating chair; and on the outer walls of the office hang gilded signs to denote the calling within. The practitioner thus equipped daily sits in his office, partly idle, and with no flush of means whereby to meet his current expenses.

The ethical teachings, if he received any while at college, are perhaps losing their force, and so he resolves to venture into the field of advertising, just to acquaint the public with some of his gifts. A little flourish of trumpets to enlighten people of one's merits is thought to be "good medicine" sometimes. A prac-

titioner may wear a D.D.S. title wholly unknown to the public, because people are forgetful of the mysterious, symbolical interpretation of abbreviations. Unfortunate as this may be to one's unrisen success and obscurity in which one may find himself, it is eminently proper to parade this title as often as it will do the most good, so he thinks. Having settled, if he ever had any qualms of conscience about it, on a card which is to disclose particulars, it ran something not unlike the following, viz:

“JOHN SMITH, D.D.S.,

Operative and Mechanical Dentist; is prepared to give Vitalized Gas for the Painless Operation of Fixing Teeth, etc. etc.”

Perhaps he gazes from some valedictorian summit down on the achievement of this literary venture, and counts the wealth which is to roll into his coffers. He closely scans the card as it appears in type, and retires to await results. Like spirits from the vasty deep, or a micrococcus in the bacterian paradise, they—the toothless masses—do not come pell-mell, or they linger by the wayside, and fall into “the hands of the incompetent.” It was ever thus from childhood's hour that whatever skill and abilities an operator may possess, time must elapse and be seemingly wasted before confidence is inspired. Dull, monotonous days must have their eternal round before thrift or gain enters the courts of the practitioner. But a man with a steady purpose to win public appreciation, who resorts to no tricks; is modest, obliging, qualified, both in his education and profession, need have no fears of obscurity or failure. The public may be slow to see honest merit, but it is sure to find and reward the diligent.

This class or type of practitioners fresh from college who employ disreputable methods to flourish trumpets, are not numerous, and yet they are sufficient in every city and town to bring reproach upon respectable dental practitioners. He who resorts to advertisements with expectations of surrounding himself with a desirable class of patients, will be disappointed, as much as an old Presbyterian pastor was when he, doing all in his modest way he could do to bring sinners into the fold, consented to have several weeks of protracted meetings, with the assistance of star preachers. After it was all over, and several weeks had intervened, the old pastor remarked, “if the Lord would forgive him this time he would never hold another.”

Ye shades of your *Alma Mater*! What are ye doing not to

teach your pupils manners and morals, in what most befits them in their career of practice? Have the persistent labors of Watt, Taft, and other teachers of our calling, been of no avail to encourage, enable and dignify our profession, especially in reference to these minor particulars of ethics, that these students whom you instruct, depart with no better elevation of manners than the above quoted instance?

Let us encourage, inculcate, instill a better appreciation of our code of ethics, that we may bequeath progress and enlightenment to those who are to follow our footsteps.

Correspondence.

"I charge you that this epistle be read."

COLUMBUS, OHIO, January 15, 1884.

Dr. Watt, Editor Ohio State Journal of Dental Science:

DEAR SIR:—Will you allow me, through the JOURNAL, to make a correction in the reported synopsis of O. S. D. S.'s proceedings as given on page 584 October number?

R. G. Warner is reported as reading from an article in the OHIO JOURNAL, to show "*that the practitioner need not live up to the code of ethics if it conflicted with his interests.*"

Amazed at such a construction placed upon my words, and the article quoted from. I, at once, asked the Society's stenographer for a copy of my words, which was furnished, and is as follows:

"DR. WARNER * * * Here is an article signed 'Querulous,' which appeared in the OHIO JOURNAL OF DENTAL SCIENCE, which struck me as very good. The title of it is, 'Where shall I locate?' In this article a young dentist feels he is debarred from competing with the old established dentists by the code of ethics." The writer says further, "If, on examination, it be found that the code exceeds the limits of restricting members within such bounds as good common sense and propriety prescribe, let it be revised by all means." Following this quotation, I said, "We are to do the best we can and it is not well to censure every man who does not do just as *you* do. If we cannot work under this code, I think there should be a *revision* of it."

I advocated *revision* and not the anarchical idea of rebellion and violation.

Respectfully,

R. G. WARNER.

We tried to give this an earlier insertion.—ED.

ALLIANCE, O., January 16, 1884.

Dr. Geo Watt, Xenia, O.:

DEAR SIR:—About four years ago I conceived the idea that there was a better way for cleaning a set of natural teeth than with the old wooden points, and to-day am satisfied that there is. I take the cone mandrel, and instead of putting in the wooden point, I insert bristles taken from an ordinary tooth-brush, and wedge them in. I have half a dozen of these, and keep them all filled up, clean and new. A few minutes before using, I put one into water, which swells the wedges, and softens the bristles. Then with a little flower of corundum, or levigated pumice, carried on the brush, there is no one but can make a clean set of teeth. A little pressure on the brush will spread the bristles and carry the powder perfectly,—deep down between the teeth, and along the free margins of the of the gums. The brush should be about one-eighth of an inch long, and the cone filled before the wedge of hickory is driven home. Try it.

Yours Fraternally,

L. W. BALLARD,

Alliance, O.

Editor's Specials.

"Write the Vision and make it plain."

CLEAR AS A CLOUD.

THE *Salmagundi* of the *Dental Register* says: "It has been discovered from statistics that in Paris the number of typhoid fever cases increases after each heavy rainfall. It is not difficult, therefore, to trace the trouble to the stirring up and setting free of foul sewer gases."

But not all of the foul gases are stirred out of the sewers, and similar sources. Many of the poisonous gases are lighter than the atmosphere, and consequently rise in it, and even if they are not lighter, in obedience to the law of gaseous diffusion, they become thoroughly commingled with atmospheric air, and the vapors it contains. Let sulphuretted hydrogen, ammonia, phosphuretted hydrogen, carbonic oxide, etc., serve as specimens for illustration. Many poisonous, volatile emanations, not very observable, are thus disseminated, and, during a long drought, these accumulate in great quantities, and are thence abundantly carried down by the rains. At such times a clean vessel set in an open field, and allowed to catch the water that falls in the early part of the shower, will be found to contain a liquid as offensive as barnyard drainage. This shows where great quantities of the foul gases may be found.

Often during the prevalence of dysentery or malarial fevers, we have seen the number of cases more than doubled by a brisk rain after a prolonged drought. And it is well for dentists who practice in malarial districts to bear this in mind; for when many are taken down by well defined disease, all are more or less affected, and their teeth and mouths will be irritable and sensitive accordingly.

Above we have tried to set forth the true explanation of the ordinary filthiness of rain water. Many authors, even Regnault, explain the fact by the statement that ordinarily the rain water is collected as it runs from roofs, and that it is defiled by the excrements of birds; and to prove this, they refer to the stercoraceous odor of that which is first collected. But the entire atmosphere below the clouds needs washing as badly as do the roofs. Toward the close of a prolonged rain storm the water is about equal to that which is freshly distilled, the main difference being that it is saturated by carbonic acid.

A CHARGE TOO GENERAL, PERHAPS.

THE December (1883) number of the *Journal of the British Dental Association* complains "that some of our American contemporaries have lately adopted what appears to us the very objectionable practice of republishing as '*from the transactions of*

the Odontological Society of Great Britain, papers which were read before that Society eight, ten, and even fourteen years ago, without giving the slightest indication that they have not been recently delivered." Then certain specified articles are referred to as having "appeared in conspicuous positions in American Dental Journals, without the smallest hint that they were not the production of the current session."

The phrases, "some of our American Contemporaries," and "conspicuous positions in American Dental Journals," would seem to indicate that several, if not a majority of these American periodicals are guilty, as complained of; but further down in the editorial, *one* is specified, and instances of its guilt are pointed out. But if the plural form of expression used above is warranted, more than one ought to be specified, or else this one alone should not have been named, while others equally guilty are left unspecified. We would feel sorry to believe that many of our journals have been thus faulty; and in the one specified, we believe the occurrence has resulted from inadvertence on the part of a very busy editor. We can realize that the matter must be very annoying to the Society, and especially to the authors of the papers used; for when any profession is progressing as rapidly as ours, no writer wishes to be called to strict account for even his last year's opinions, especially on antiseptics and subjects alike unsettled. It is sad if a journal is so hard up for matter that it uses such antiquated papers, when so many in our profession hold ready pens, which they should allow to run.

"BEING DEAD YET SPEAKETH."

THIS was once said of a good man, and may now be said of a *good thing*, if we apply it to the late *Missouri Dental Journal*. This good journal gave official notice of its demise, but we have reason to think it will prove a lively old corpse; and we don't believe it is hopping around merely to save funeral expenses. And as resurrection implies new life, there is nothing improper in a new name; and so it will not announce itself as the *Missouri Dental Journal*, but it will be called the *Archives of Dentistry*.

It will be published by "The Dental Journal Association," which will also control the editorial work on it. The "preliminary

prospectus" tells us "this Association is being incorporated, and has purchased the *Missouri Dental Journal* as a starting point."

The new—or re-newed journal—will be published simultaneously from Chicago, St. Louis and Atlanta. Its "editorial staff will comprise representative men chosen from all sections of the country;" but we suppose some one of these, or some member of the Association, will act as managing editor, in order to avoid the evil suggested by the homely old proverb that "too many cooks spoil the broth." We take for granted that this new venture will have both talent and energy behind it, and we shall rejoice to see it prosper.

"A CROWNER'S 'QUEST."

"The doctors found when she was dead
Her last disorder mortal."

But a "crowner," with his "'quest," at a more recent date, has sat down on a rotten tooth, and has found that after it is entirely decayed it has caries; but while the decay was progressing it had—well, we don't know that the "'quest" understood itself, or that we understand the "'quest." "Silence is golden."

THIS NUMBER'S CONTRIBUTORS.

Nor often has a single number of a dental periodical shown such an array of talent as is set forth by the list of contributors to the present issue.

Look at the names: Spalding, Swain, Black, Harlan, Brophy, Newkirk, Morrill, Tullis, etc. When they are ready to write for us, we are ready to remain silent, hence we have furnished of editorial matter merely enough to prove that we are still alive.

AN ACTIVE PRINCIPLE OF ERGOT has been obtained by Gehe & Co., Paris. It is called ergotin, and it is said to have very powerful hæmostatic properties. It is very expensive, however, one gramme costing about forty dollars.

Societies.

"Wherewith one may edify another."

CHICAGO DENTAL SOCIETY.

THE regular monthly meeting of the CHICAGO DENTAL SOCIETY, was held at the Dental Infirmary, President Pruyn in the chair. Members present: Drs. Cushing, Brophy, Swain, Crouse, Koch, Swazey, Ames, Gardiner, Kester, Harlan, Cattell, Graves, Gregory, Wheeler, Reid, and others. Dr. Marriner, of Ottawa, and others were present as visitors.

The essayist of the evening, according to programme, was Dr. Edward Noyes, but owing to the recent loss of his beloved wife, he was excused, and Dr. Eggleston Burrows, M. D., kindly consented to fill his position, furnishing an interesting paper on "The Fifth Pair of Nerves," introducing the subject by a brief anatomical description, as well as their physiological action, concluding the essay by giving some interesting information on neuralgia of the nerve. The following is a brief synopsis of the paper: Neuralgia is a disease of the nervous system. Pain from neuralgia is defined under three propositions:

1st. Pain is not a hyperæsthesia.

2d. Pain is due to a perturbation of nerve force, originating in dynamic disturbance, either within or without the nervous system.

3d. The susceptibility to this perturbation is great in proportion to the physical imperfection of the nervous tissues, until this imperfection reaches to the extent of cutting off nervous communication.

"Pain is the prayer of a nerve for healthy blood."

Neuralgia rarely occurs before the age of puberty; but from that up to twenty-five is a period of perversion; and from forty-five up, its manifestations are frequent, and of the most troublesome character.

Neuralgia comes on suddenly and ends abruptly. The fifth nerve is more frequently subjected to this disease than any other nerve in the body. Pain from neuralgia of the inferior dental nerve, or its branches, is often located in the vicinity of the ear.

DR. BROPHY commended the paper very highly, and said that much light might be furnished on this important subject leading to a better understanding in the future, that we were, perhaps, not so well acquainted with the affections arising from this source as we ought to be.

DR. CROUSE cited a case of a little girl who had been treated for a painful affection of the ear, by an experienced aurist. No marked improvement resulted from the continued treatment, and the parent was led to suspect the trouble might be with the teeth. So an examination was made, which revealed an exposed pulp in a lower molar. This was properly treated, and no recurrence of the ear trouble has been noticed.

We find neuralgic affections quite complicated when arising from the formation of pulp nodules. Such cases are very difficult to diagnose.

R.

CHICAGO, Feb. 5th, 1884.

MINNESOTA STATE DENTAL ASSOCIATION.

At a meeting held in Minneapolis, Minn., January 16, 1884, the Minnesota State Dental Association was organized. The following officers were elected: President, H. M. Reid, Minneapolis; Vice-President, L. M. Lyon, St. Paul; Recording Secretary, H. L. Cruttenden, Northfield; Corresponding Secretary, T. E. Weeks, Minneapolis; Treasurer, S. T. Clements, Fanbault; Executive Committee, C. H. Goodrich, C. M. Bailey, J. B. Little, J. L. Jacobs, A. T. Smith; Membership Committee, E. B. Dellingham, R. H. Phalon, B. G. Mony, A. L. Bansman, H. A. Knight.

The next meeting of the Association will be held July 16th, 1884, at St. Paul, Minn.

H. L. CRUTTENDEN, SEC'Y.

ST. LOUIS, January 12th, 1884.

Dr. George Watt, Editor Ohio Dental Journal:

DEAR DOCTOR—The St. Louis Dental Society has elected the following corps of officers for the ensuing year: Dr. J. B. Newby, President; Dr. N. C. Stark, Vice-President; Dr. J. W. Whipple,

Recording Secretary ; Dr. A. J. Prosser, Corresponding Secretary ;
Dr. G. A. Bowman, Treasurer.

Yours very truly, JAS. W. WHIPPLE,

REC. SEC'Y.

ROMEO, MICH., February 11th, 1884.

GENTS :—Will you please to give notice through your JOURNAL that the Fifth Annual Meeting of Alumni Association, of the Dental College, University of Michigan, will be held in the parlors of the St. James Hotel, Ann Arbor, Mich., Tuesday evening, March 25th, 1884, at 7:30. Every Alumnus is earnestly requested to be present. Let all please notify the Secretary as soon as possible if they will be present or not. Commencement exercises of Dental department will be held at 2 o'clock, March 26th.

L. L. DAVIS,

PRESIDENT.

R. A. YOUNG,

SECRETARY.

Books and Pamphlets.

TRANSACTIONS OF THE OHIO STATE DENTAL SOCIETY. Eighteenth Annual Meeting, held at Columbus, October 31st to November 2d, 1883. Published by the Society.

THIS Annual appears in its usual form, and consists of fifty pages. It contains the Minutes, the Papers read, and the Report of the Discussions. The paper is good, and the printing is in clear type ; but more than ever, if possible, we see the need of editorial supervision. The Publication Committee may lack the time necessary, or its members may be unfamiliar with such work. At any rate, much inelegant rhetoric has been allowed to pass in, accompanied by ungrammatical expressions ; while the proof-reading has been almost neglected, as is shown by there being nearly a dozen typographical errors left on a single page. Proper names are usually hard to manage, but familiar ones should not be mutilated. Magitito, Lebig, Rottenshue, in the space of a page, look singular. And all this is referred to by way of inducing the Society to make better provision for publishing its transactions. The book is quite readable. We would have been glad

to see a greater number of essays, and if each subject of the programme had been opened by reading a paper, the meeting would have been all the more interesting.

RECEIVED—Garretson's Oral Surgery, new edition. Too late to notice in this number. Will give it attention in our next.

DENTAL MEDICINE: A Manual of Dental Materia Medica and Therapeutics for Practitioners and Students. By FERDINAND J. S. GORGAS, A. M., M.D., D.D.S., of the Dental Dep't of the University of Maryland.

THAT the profession wants—both needs and desires—a work of this class is beyond dispute. Not only does the student need a text-book, but even the practitioner as well, needs a *ready reference* book, especially when he is tired, languid, or hurried.

The long experience of Professor Gorgas in the Baltimore College, and later in the University, gives good reason to hope that the right man has undertaken the task. The book contains some 300 pages; and, paper, type and binding are equal to the best style of the publishers, Messrs. P. Blakiston, Son & Co., of 1012 Walnut street, Philadelphia; and nothing better can be said in commendation of it.

The value of the book is greatly enhanced by a very complete general index. In short, both author and publishers have done their duty, and we cordially commend the work to our readers, without, however, setting up the claim that it is perfect, for "to err is human," and the author himself will doubtless see points for possible improvement.

LETTERS FROM A MOTHER TO A MOTHER ON THE FORMATION, GROWTH AND CARE OF THE TEETH. By the WIFE OF A DENTIST, "Mrs. M. W. J.," Atlanta, Ga.

"Mrs. M. W. J." lately attracted attention by a series of letters in the *Southern Dental Journal*, and now we have before us a little book consisting of sixteen letters, with an Introduction and Conclusion. First, How the Baby is built up; Second, When and how the Teeth are Formed; Third, What the Teeth are; Fourth, Food Principles; Fifth, Where the elements of Tooth substance are Found; * * * Eighth, Dentition and Disease; * * * Eleventh, Why the Baby Teeth should be Preserved;

* * Fourteenth, Causes of Decay. Prevention. These will give the reader an idea of the scope of the book. The author's style is lively and chaste; and she shows a fair degree of acquaintance with her subjects. The book contains 72 pages, and was printed by Judson and Dunlop, Atlanta, Ga., from whom, or the author, we presume it may be obtained.

PORT HURON, Feb. 14, 1884.

Editor Ohio State Journal:

DEAR SIR—THE MICHIGAN STATE DENTAL SOCIETY will hold their annual meeting at Detroit, commencing the evening of March 26th, and continuing in session two days. The papers will be numerous and interesting.

Yours,

J. B. MCGREGOR, Sec'y.

Our Aftermath.

LANCASTER, OHIO, January 28th, 1884.

Dr. Watt:

Some three weeks since I was called upon to extract the first inferior molar on the right side, for an inmate of the State Reform School. I found an abnormal condition that I have never seen before. The visible crown of the tooth presented no unusual appearance, except that the neck sloped forwards instead of backwards. The anterior root was a normal lower molar one. The posterior was double, and in every respect, anatomically, the labial roots of an upper molar. I have since extracted the corresponding tooth on the opposite side, which presented no departure from the normal state. Fraternaly,

J. CLARK SCOTT.

CLEVELAND, OHIO, January 9th, 1884.

DEAR DOCTOR:—I have just seen the following case: Patient aged about eighteen, and still retaining the four second temporary molars. In one of them the pulp is dead, and the tooth is filled. Two others are filled. The remaining one is not decayed. There are no signs, of a positive nature, that the bi-cuspids will succeed any of these teeth. Respectfully,

No. 519 Euclid Avenue.

H. L. AMBLER.

TO PRODUCE A RETICULATED SURFACE ON PALATAL SIDE OF GOLD PLATES.
—Cut a piece of sand-paper a little shorter than the plate; place the sand side next the plate, and pass it through the rolling mills; remove the sand-paper, anneal the plate, take a fresh piece of sand-paper, and apply as before, rolling

in the opposite direction. For twenty carat gold this is enough, but for hard platina three or four rollings with sand-paper will be required to give it the desired roughness. Of course the plate must be a little thicker than the required strength, to allow for the thinning out under the sand-paper. Dental plates treated in this manner are more easily struck, have a more artistic finish, and are very much improved in the quality usually called suction, do not gather food, and are easily cleaned. Any grade of multi-cellular surface may be obtained by using coarse or fine sand-paper. Do not use emery paper, it will spoil the mills.—GEO. BRUNTON in *Journal British Dental Association*.

REPORT OF THE WRECK OF THE CITY OF COLUMBUS.—The body of Mrs. Kellogg was found at the Morgue to-day by her son, who has been here since Saturday. Mr. Kellogg went to Gay Head on Sunday and saw what bodies there were at that place. He viewed the corpse of the horribly mutilated woman, already described, but never for a moment thought that it was that of his own mother. In going to Gay Head he said that he hoped he would never find the body if it were mutilated. He returned to Boston on Monday and procured a description of the filling of the teeth of his mother prior to her departure, and this description enabled him to-day to identify her remains.

CARBOLIZED WOOL OR SILK FOR PERMANENT FILLING OF ROOTS.—

R	Black resin, ...	j.
	Liquid carbolic acid, ...	jss.

Melt the resin and add the carbolic acid. Take some cotton and dip it in the mixture until it is saturated. Then wring out in muslin as much as possible, and it is ready to use. Keep in a wide-mouth stoppered bottle. Take any gloss silk you prefer and pass it through the melted mixture. I generally use the waxed silk of the depots.—F. H. BALKNILL in *Journal Brit. Dent. Ass'n*.

NERVOUS CONSTIPATION.—For this condition, in nervous, hysterical women, the *Rivista di Bologna* advises from one to four of the following pills daily. If intestinal atony exists, extract of nux vomica should be substituted for the belladonna:

R	Pulv. ferri sulphatis, ...	gr. 1½;
	Aloes socotrinae, ...	gr. ¾;
	Ext. belladonnae, ...	gr. 1-13 1-6.

—*Med. and Surg. Reporter*.

Dentists are quite as subject to this as are nervous women.

COMPARATIVE ACTION OF OPIUM AND MORPHIA.—Dr. I. Ott gives the following comparison in a recent paper: Opium *en masse* causes a sleepy, nearly narcotic action, quickly disappearing, while morphia produces a deep and prolonged sleep. Morphia disturbs the stomach more than opium, and its action is more prolonged. Opium is in some cases better borne than morphia; in others the reverse happens. After either opium, or morphia there is a period of excitation which, in the case of morphia, soon passes into sleepiness, while after opium, this excitement lasts longer. Opium causes a more lasting ting-

ling in the skin than morphia or codeia, and constipates more than morphia, but does not cause as much diaphoresis. Morphia increases the urinary secretion more than opium.

Dr. Eisenmann, of Wurzburg, has shown that opium increases the curative properties of all the heroic remedies, and diminishes their toxic. Bernard found that a subcutaneous dose of morphia causes the amount of chloroform for purposes of anæsthesia to be smaller in quantity.

REMARKS ON PHYSICAL EXERCISE.—Dr. John H. Packard, in a short paper, advocated the importance of physical exercise as a means of preserving health.

Dr. Cheston Morris. The question for us to determine, as physicians, is this: How much exercise can our patients take with benefit? I have found that any amount of exercise, such as walking, that is found to give the patient an appetite will be useful, and I frequently tell my lady patients that they may go out and exercise as much as they choose, provided they come home hungry. On the other hand, when they come home tired and want to lie down, they have carried it to an injurious extent.

Every function of the body should be performed with pleasure. There are a great many persons weak by nature, or invalids, who have a pressure of work thrust upon them. The cares of a family, anxiety about business, and actual labor, are more than they can physically support. These people need rest, more than exercise. The trouble is, we generally overdo the matter, and instead of resting, we rush to gymnastic exercise, when we find strength failing. If I am right, that the functions of the body should be performed with pleasure, arising from a consciousness of power and satisfaction in employing them, whether it is our duty to do a certain work will depend upon our ability to perform it. When the strength exists, we usually find the desire, except among lazy people, and many so considered are, in fact, sick. I remember well a clergyman who was much censured for his inactivity and listlessness; the only duty he performed, in the line of his calling, was an inefficient attempt at taking care of a Bible class. He became gradually more feeble, and finally died, apparently, like Colley Cibber, "to save himself the trouble of shaving." The autopsy revealed Bright's disease, of long standing. I find a safe rule, as to amount of exercise to be taken, or of work to be done, is contained in the formula: "I can, I want to, I will." Too often people, especially good Christian people, reverse or change this natural order, and make it, "I ought to, therefore I can and I will," or "I want to, therefore I can and will," or "I will, therefore I can." Such resolves are apt to result in a failure to accomplish the best work in our power, even if they do not, as they often do, produce disease.

TREATMENT OF BURNS.—Dr. Shrady of New York, has recently treated burns by applying a paste composed of three ounces of gum acacia, one ounce of gum tragacanth, one pint of carbolized water (1 to 60), and two ounces of molasses. It is applied with a brush, renewed at intervals, and is stated to be a successful method. Four applications are usually sufficient, the granulating surfaces being treated with simple cerate or the oxide of zinc ointment, as indicated.—*London Lancet*.

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"A word fitly spoken is like apples of gold."—SOLOMON.

ADDRESS TO THE GRADUATES.

BY FRANK A. HUNTER, D.D.S., CINCINNATI, O.

[At the Ohio College of Dental Surgery.]

Gentlemen of the Graduating Class:

HAVING been a graduate myself, and having occupied the same position that you do to-night, I can very well appreciate your feelings, when the thought comes to you that I, through the invitation of your Faculty, am in a position to inflict upon you torture, to which the agonies of the Spanish Inquisition were mild indeed.

The poet has informed us that revenge is sweet; and it is with pleasure that I accept the task of making you as miserable as was I upon a similar occasion.

"Breathes there the man with soul so dead
Who never to himself hath said "
My time will come?"

Gentlemen, it has come,—I am here.

Following the custom of my predecessors, I have arranged my address under twenty-three separate headings:

First, considerable time and space are usually employed by speakers and writers to demonstrate that the practice of dentistry is an honorable calling; I will simply dismiss so self-evident a proposition by saying that honestly conducted, our profession is inferior to none.

The antiquity of dentistry is and has been a favorite theme with many writers; and it has been traced to different periods of the world's history. It has been claimed that recently, by the unwrapping of Egyptian mummies, gold fillings have been discovered in the teeth. Some people are skeptical enough to suggest that probably these fillings have been put there after the mummy was unwrapped. Be that as it may, I have seen conclusive evidence that dentistry was known, and that the teeth were cared for, by pre-historic man. In the Nevada silver mines, while wandering along one of the drifts or galleries, many hundreds of feet below the surface of the earth, where all is darkness save for the torch that illuminates the way, I suddenly came upon a huge wall of stone, containing what to me was evidence of the great antiquity of our profession; for there the miners, by their excavations, had disclosed, written upon the stone in symbols which it was impossible to misconstrue, "Sozodont; for the teeth."

Still following the custom of similar occasions,—for gentlemen, we must follow custom; the laws of custom are rigidly drawn, and he who has the hardihood to o'er-step the bounds, is guilty of innovation, and risks his reputation for good taste, and reverence for the past. So following the custom, it becomes my duty to impress firmly upon your minds, the all important fact that this evening is the commencement of your professional career. Let not your conceit carry you beyond your judgment, and lead you to think that your student life is ended; for, as a rule, he succeeds best whose student life ends only with death; and he who at old age, is satisfied with the knowledge of youth, has been left so far behind in the progress of the world, that he is not thought worthy of confidence by those around him.

In selecting a field wherein to practice your chosen profession, let me advise you to establish yourselves where you are not known; not that I wish to cast any reflection upon your integrity or ability (for graduation under the Faculty of the Ohio Dental

College is a synonym for both); but you will secure greater and more speedy success among strangers than you will in your native place, for the simple reason that there you will be looked upon as a boy until you turn gray, and then you will be considered too old to practice.

If your desires or inclinations so lead you, if you feel the need of reliance upon some greater power for your guidance in this world or your salvation in the next, connect yourself with some religious organization; but for God's sake, as well as your own, do not join church for the benefit of business. It is one of the most contemptible forms of advertising of which you could be guilty. There is no class of men that more need the saving grace of religion than do the dentists—at least so our patients say—but if there is not a nice pleasant corner in the next world set apart for our exclusive use, there is no such thing as retributive justice.

There are many different ways of working up a dental practice; but the easiest, speediest, most certain and satisfactory, is by advertising—not in the public prints, by hand bills, or by joining church, but by advertising the fact, unostentatiously, that you are a gentleman, and by letting your work advertise your ability.

It would be almost useless for me to conjecture the motives which led you to adopt dentistry as your profession, but I think that I am safe in saying, that the majority of you did so because it seemed to you the most congenial mode of earning a livelihood. Some enter the profession and continue in it, from a sense of duty; for the love of doing good; from purely philanthropic motives. I have known some such, and have universally found their distinguishing characteristic to be exorbitant fees. Others enter the profession because it is an easy way to get rich. All dentists *are* rich, at least they ought to be; for, from the time they commence practice fortune favors them; and it is a difficult matter to find one who did not do a business of over three thousand dollars the first year, forty-five hundred the second, seven thousand the third, and so on, increasing in proportion, so that by the time he had been in practice twenty years, he was able to buy a house and lot *on credit*. Professional men, as a class, live well but die poor. It has been estimated that in an experience of twenty-five years in a mercantile pursuit, the per centage of failure is about ninety-seven in the hundred; and where the failure occurs after middle life, and is honest, the merchant loses his

capital, and is seldom able to get upon his feet again. But with the professional man, his health is his capital; if he should get a little ahead, and desire to speculate, and stake his pile on an ace full, against four jacks, he loses his money; but still, having his health, he is in position to call for a new deal, and take a fresh start.

There is not the same chance in a professional career for making a large amount of money as in mercantile pursuits, neither is there the same chance to lose what you have already made. It is a more regular occupation, and if you behave yourself properly you can make a comfortable living.

You now start out with an unlimited fund of knowledge—in your mind. As you grow, it will grow—beautifully less; and at the end of twenty-five years, if you progress as I hope you will, you will have come to the conclusion that you don't know anything. That may seem paradoxical to you, but it is true nevertheless.

• Associate yourselves with one or more of our Dental Societies. No one man knows it all, and by the mutual interchange of ideas great good is accomplished. The social aspect alone is worth the time and trouble of attending the meetings, for it is pleasant to make acquaintances among men in the same occupation as ourselves; and during the discussions of the various topics, something *may* possibly be said that will be of benefit to you. Subscribe for one or more of our best Dental Journals; study them carefully during your *leisure* hours, and if you should find an article that seems to you good, why, read it again. Be contributors to Dental Science. If you have the talent, write for the journals, but be sure that you have something to say. Do not write simply for the sake of seeing your name in print; and if your line of thought should lead you to *discover* something that was used and discarded before you entered the profession, do not be discouraged, others have done the same thing, but wipe off your pen and try it again.

Besides the studies relating strictly to our profession, it is well to take up some congenial outside study, so to speak, that it may be a recreation to you in after years when engaged in full practice. To a dentist in full practice, the nervous strain is considerable, and the evening study of some congenial theme is a relief. You might take up zoology, geology, botany, astronomy

(astronomy is a good *night* study), or microscopy. Now the use of the microscope is entertaining as well as instructive, and most of you being young, it is well enough for you to commence at once, for I believe they say that it takes about one hundred and fifty years constant study to be able to distinguish the difference between the *leptothrix buccalis*, and the *micrococcus*.

In working up a successful dental practice, more is required than simple ability to do good work. Tact, management, industry, neatness, sobriety, and honesty, play important parts in the lives of successful practitioners. I have known men of ability who could be classed as eminently successful failures, through lacking one or more of the attributes mentioned. During your career you will undoubtedly find abundant opportunity for the exercise of charity. It remains with yourselves whether you will accede to one of the noblest impulses of mankind. Patients will apply to you for services who are unable to recompense you proportionately to the time and labor expended. Knowing such to be the case, and undertaking the operation, do not slight your work, but render the best service in your power. Neither on the other hand, increase your fees to those who are in better circumstances, thereby making others pay for your charity. That is not only uncharitable but down right dishonesty.

In your office as well as elsewhere, let your manner be agreeable. You will be the gainers by it. In your work you will find much that will be irritating—so will your patients—but no matter what transpires, keep an unruffled exterior, however great the fire may be raging within.

Furnish your office neatly but not gaudily. Do not go into debt unless you can see your way out. You must creep before you can walk; and from time to time, as your means permit, you can make such additions as will be in good taste. Have things pleasant around you; for *you* yourself will be unpleasant enough to your patients.

Educate your patients in your office, but do not talk shop outside. The man who talks of his own affairs, or of himself, is voted a bore in society, and his company, to say the least, is not sought.

Set apart certain hours for labor, and during those hours be found in your office, for it may be possible some one will call who requires your services, or who may want to pay a bill, and it

would be mortifying in the extreme not to find you there. If you fail to make a success of dentistry, do not tack on to it the manufacture of ax-handles, but withdraw from the profession and turn your energies to something for which you are more fitted. your practice you will undoubtedly come across cases somewhat out of the ordinary run, that will baffle your judgment and defy your ability to carry the treatment to a successful termination. In such cases do not rush in blindly and treat hap-hazard, but study the case carefully; and if unable to treat intelligently, *consult* with some other dentist—not necessarily an older man, but one in whom you have confidence. In the practice of medicine, physicians are in the habit of consulting with each other in serious cases, but with dentists the custom is “more honored in the breach than the observance.” There is far too little consultation in the dental profession for our own good; we are individually too much wrapped up in ourselves, apparently fearful that our patients will think that somebody else knows as much as we do. No physician was ever the loser by consulting with a reputable practitioner, and there is no dentist that will not be respected for it.

No Physician was ever the loser by consulting with a reputable practitioner, and there is no dentist that will not be respected for it.

Have respect for medicine and its practitioners, but do not confound the two professions of medicine and dentistry. Dentistry is not, never was, and never can be a specialty of medicine. It is a separate and distinct profession, having its own colleges and its own literature.

A knowledge of anatomy, physiology, chemistry and therapeutics is essential to the successful practice of both professions; and these are taught with equal thoroughness in the colleges of both—frequently by the same professors.

Thus far the two professions travel side by side, and then diverge; the medical practitioner takes up general medicine, while the dentist begins his art.

The art in medicine or surgery if you please, is so inconsiderable as hardly to be taken into account, while in dentistry it plays so important a part, that he who is without it, is considered unworthy to enter upon its practice, in fact, it is made the test of ability.

Fortunately for the dignity of the profession, but a few clamor for the recognition of dentistry as a specialty of medicine. The vast majority are satisfied with the recognition we get, and that is as doctors of dental surgery.

It is not an infrequent occurrence for dentists to be called in consultation with medical practitioners, and it is when the latter recognize the case to be outside the science of medicine, and within the science or art of dentistry.

I would not be understood as saying that a medical education is not advisable in the practice of dentistry, but simply that it is not essential. A thorough understanding of the studies taught in our own colleges, is sufficient to make you successful practitioners. A knowledge of the natural sciences, and even of law, might sometimes be made available.

Educate your patients not to expect too much of dentistry; and do not expect too much yourselves. One of the greatest drawbacks to the advancement of our profession is the unfulfilled promises of its practitioners. The people at large, through misinformation, are led to expect more from the dentist than they really get. Many think that a tooth once operated upon by the dentist, should be as good if not better, than it was originally, forgetful of the fact that the work of the Almighty, or Nature, if you please, has failed, before they apply to the dentist for *repairs*. Why should more be expected of man than of Nature? What is to prevent a recurrence of the disease, if the surrounding conditions are not altered? And how seldom can these conditions be changed.

The mere fact that a tooth requires the services of the dentist, shows that it is of imperfect structure, or the conditions are favorable to the development of disease. After the diseased portion has been removed, and its place supplied by art, it is the duty of the dentist, not to "warrant it for life," but to firmly impress upon the mind of the patient the fact, that unless more attention is given to it in the future than has been bestowed in the past, failure will be the result, and that in a comparatively short time.

We must have the coöperation of our patients, and the sooner that is understood the better it will be for the profession. Some may say, why this does not apply to me, for I make no promises at all. Gentlemen, we all make promises. The fact that we operate upon a tooth at all, and charge a fee for it, is a promise that something is expected; and if the patient expects more than

he gets, it is the fault of the dentist. I speak thus strongly to show you that the practice of dentistry is not all plain and smooth sailing, that there are obstacles in the way, and that there is a degree of uncertainty about it, as there is in medicine or law.

An incalculable amount of good has been done, and is being done by dental operations; and I am proud to say that I am a member of a profession whose benefits to suffering humanity, place it along side of medicine, and whose members take rank with the scientific and thinking men of the world.

But the vast majority of our operations are performed upon teeth of poor structure; and, when we build a house upon a sandy foundation, we must take the chances of a flood, which, coming sooner or later, washes the foundation away and leaves an utter ruin.

And now I have a serious and solemn duty to perform. Take the advice of one whose life has not been all it should have been, one who has lived to see the folly of his way—get married. The benefits to be obtained by such a course are numerous. You will at once secure a large and lucrative practice—among your wife's relations. Be kind and gentle with them; you will be abused, but no matter; let the consciousness of having done a good action uphold you, and you will receive your reward, if not in this world, in the next.

In conclusion, allow me to say, let your lives be such that you will obtain the good will and confidence of the community in which you reside, so that when your time has come, and you may have left this world to take your place among the followers of Truth, it may be said of you:

“His life was gentle; and the elements
So mixed in him, that Nature might stand up,
And say to all the world, ‘*That was a man.*’”

CINCINNATI, March 4th, 1884.

DENTISTRY AND ITS PRESENT STATUS.

BY K. B. DAVIS, M. D., SPRINGFIELD.

[Read before the Central Illinois Dental Society.]

DENTISTRY, as compared with the other learned professions, is of recent origin. The elder professions, of law, medicine and theology have been forming their usages, gathering their traditions,

and establishing themselves in the respect and confidence of mankind, for centuries; and we can hardly expect a profession, so recent as ours in its origin, to have already acquired as firm a footing as they, or safeguards as effective as theirs, against injurious influences from every quarter.

The development and progress of dentistry in this country during the last seventy years, have been extraordinary in many respects. At that time we had no text-books, no periodic literature, no system of education, nor any recognized status. But less than fifty years ago, Harris, Hayden, and a few other noble and self-sacrificing spirits in our specialty, who imbibed their spirit of enthusiasm with a sincere desire to benefit mankind, and elevate dentistry to the dignity and importance to which it was entitled, established a dental college, thus endeavoring to bring out of chaos something at least approximating a liberal profession. The establishment of a dental college was the dawn of a more glorious career for the profession; from that time forward steady, if not rapid, progress was made, and as the light advanced unto the more perfect day, and as the members met, and learned to know and understand each other, a more liberal and fraternal spirit began to prevail.

Dental literature began slowly to multiply and text-books gradually to increase. Other dental colleges were established and thus ample opportunities were afforded students to prepare themselves for professional duties with some degree of perfection.

Dental societies were organized, and through this instrumentality renewed energy was given to dental science. Through this agency we have perhaps made as much progress as through any other one. Here mind comes in contact with mind, and new ideas and methods of operating are suggested—a liberal and fraternal spirit is fostered that ultimates in a general elevation of the profession. Colleges have increased fully as fast as the demands of the profession would warrant. Our journals seem amply sufficient to supply every demand for periodic literature, and our societies are in a very active condition, in almost every State of the Union.

Having thus briefly adverted to the development and progress of our profession in the past, let us now examine its present status.

Our many colleges, our efficient literature, our national and local societies, our scientific investigations and discoveries, and our untiring efforts to perfect our operations, we think justly entitle us to a place side by side with the other learned sciences.

There are conflicting views held by many of our leading men as to the relations of dentistry to medicine, one class contending that dentistry is a distinct calling or profession, that its educational institutions are best promoted by entire independence of those of medicine. They also assert that a medical education is neither desirable nor necessary for the dental practitioner. The assertion is continually reiterated that "the great science of medicine and surgery failed to comprehend and make provision for the study and treatment of the teeth," and that "respectable and medically-educated dentists were refused admittance to the American Medical Association." Grant all this, and what does it prove? If it proves anything, it is simply that the American Medical Association then failed to comprehend the importance of oral surgery, and its relations to the general system; but it does not in any sense negatively settle the question, as to whether dentistry is a specialty of medicine. The history of dentistry is somewhat like that of general surgery. There was a time when the surgeons of London applied to the medical profession for recognition, and asked that provision might be made for teaching their branch of the healing art; but they were refused. At a subsequent time, however, the medical profession desired to recognize the surgeons when the latter declined the honor, but an act of Parliament compelled them to come to terms, and surgery became a recognized branch of medicine.

On the other hand, we find a large class of men who take the position that dentistry is a specialty of medicine, that it sustains precisely the same relation to medicine that ophthalmology, surgery and gynecology occupy; they also maintain that the dentist would be far more efficient if he was to first take a thorough medical course and then supplement this with a full course of special study in a good dental college or infirmary.

It would seem unnecessary to offer any arguments in support of this position; however as some are disposed to controvert it, some of the most obvious reasons may be presented in sustaining this position. All will readily admit that dentistry is not justly comprehended by the people generally; at least a very large proportion of them regard dentistry as a mere mechanical business or trade. They do not at all regard it as a profession or a specialty of medicine. They do not hold these erroneous views in regard to general surgery, ophthalmology and gynecology; why then do they hold these erroneous views about us and our stand-

ing? They are certainly all equally specialties of medicine, and certainly our specialty deserves as high a status and as full recognition from the people as the others. But that we do not receive it is evident to the most careless observer. Are not the people somewhat justified in their low estimate of our specialty? Until recently any one, no matter how illiterate, and without a semblance of special knowledge or training, was permitted to engage in the practice of dentistry. A very large proportion of those who are now engaged in the practice of dentistry are in the truest sense of the word, only mechanics, and it would be worse than folly to call them anything else. It is largely from this class of men in our ranks, that the people get the idea that ours is a menial vocation. The same ideas are furthermore propagated among the people by many dentists who do not look at ours as a specialty of medicine, from a want of a professional bearing. They are habitually in the habit of using unprofessional terms to their patients, thus educating the patient that he is pursuing a mere business calling, whereas he should upon all occasions, endeavor to impress upon both his patients and the public, that he is practicing a professional specialty. What the people know upon this subject is just what they have been taught, and it is not to be supposed that they will put a higher estimate upon dentistry than we place upon it, and if we regard it as only a kind of craft, or a *quasi* profession, the people will certainly place a still lower estimate upon it.

Had dentistry like ophthalmology, always been taught as a specialty of medicine, all these erroneous views would have never been entertained, and doubtless dentistry would have made just as much or more progress as it has independently.

There is an ever-increasing interest manifested by all of our leading spirits in every effort and method that gives promise of a true elevation of the status of our specialty. Hence there is an increasing demand for a better preliminary education on the part of those entering our schools, and a higher degree of qualification in special training is now requisite for graduation.

It was a great step in the elevation of our status when dentistry was acknowledged by such Universities as Harvard, Michigan and Pennsylvania. But it was a still greater step when at the Annual Meeting of the American Medical Association, which met at Richmond, Va., on May 3d, 1881, dentistry was formally and

fully recognized as a specialty of medicine. Lest there be some here who have not read the remarks of Professor Gross on that occasion, I feel tempted to quote them in full, in order that those who disbelieve that dentistry is a specialty of medicine, may see what this eminent surgeon thinks upon this subject. In support of this amendment, Professor Gross said :

“When we consider, Mr. President, the value of dentistry, and the fact that it is universally regarded as one of the necessities of civilized life, it is surprising that such a section was not established long ago. Dentistry is the oldest of all the specialties. It has been practiced from time immemorial, and in modern times has acquired a degree of importance not exceeded by any one branch of the healing art. There are at this moment not fewer than fourteen or fifteen dental colleges in the United States alone, and thousands of educated dentists in the enjoyment of a successful practice. Dentistry has copious literature ; many journals are published in its interest, and numerous associations attest the ties by which its members are cemented together. If these things be true—and I vouch for their accuracy—it is, it seems to me, eminently proper that this Association should, without delay, form a section, such as is contemplated by my motion. The Association has long had a section on ophthalmology, one on otology, and one on laryngology ; and surely, if these specialties are entitled to such a distinction, it is not difficult to find reasons for placing dentistry upon a similar footing. Every man, woman and child in the civilized world requires the services of the dentist, whereas comparatively few persons require the services of the oculist, the aurist or the laryngologist. The claims of dentistry, when properly practiced to an elevated professional status, are everywhere recognized, while the social status of the dentist is steadily progressive. If dentistry was once simply an art, it is now an art and a science—practiced in all enlightened communities by educated and refined men. I hope, therefore, that the sanction of the house will be given to my motion.”

These are noble expressions, uttered by a noble man, and I trust that we will all treasure them in our memories, as the bright dawning of that ever memorable day, when dental science was placed upon an equality with every other medical specialty.

"THEORIES."

BY WILLIAM A. JOHNSTON, M. D., D.D.S.

[Read before the Central Illinois Dental Society.]

Mr. President and Gentlemen:

A THEORY is the expressed relation of a class of facts. It is science, as distinct from art. Applied theory is practice.

The theoretical dentist is looked upon with disdain by his so-called purely practical brother; but let something unusual occur, some case requiring accurate diagnosis or delicate discrimination, and which of the two will be more successful in treatment?

Perhaps a paraphrase will be admissible:

As unto the bow, the cord is,
So to theory is practice;
Though one bends, yet it obeyeth,
Though one draws, it always follows,
Useless each, without the other.

The more practical a man becomes, the more closely does theory connect itself with his practice. The most practical man in the world cannot dispense with theory. What builder works without plan and plumbline? Theoretical knowledge is often sneered at, and a man who claims to be wholly practical, highly esteemed in this utilitarian world.

Let me make a plea for theory and see if it is not essential to success. As an illustration, take one of the simplest operations in dentistry—the filling of a cavity on the anterior approximal surface of a superior incisor tooth.

Theory says: "In order to fill this tooth properly and save it permanently, we must have a durable, manageable filling material, capable of being accurately fitted to the walls of the cavity, so as to perfectly exclude external moisture. It must be susceptible of a high polish, so that food and mucus will not find lodgment, and, by decomposing, increase the liability to further decay."

In spite of the "New Departure" hypothesis, theory decides that the best material at our command is gold.

"The cavity must be kept dry and so shaped that the filling material will be easy of insertion, and remain where placed. Two retaining pits at the cervical margin, and one at the cutting

edge, or, if admissible, grooves in the labial and palatal walls, will serve to hold the filling.

"A groove should never be made at the cervix. The walls should be so beveled that the enamel is everywhere reinforced by sound dentine, and the edges should be smoothed and polished. The filling should be thoroughly impacted with small instruments, especially where the strain comes, i. e., the retaining pits or grooves. When finished, it should be carefully polished, and should be just full—no more, no less. The line where gold and enamel meet should not be so well marked that an excavator run over the surface would discover it."

This gives an ideal filling. The theory is good—what about the practice? How many of us are sufficiently careful of our anchorages? How many polish the walls of the cavity before inserting the gold? How many cut away *all* the frail enamel, leaving a sturdy bit of dentine to build against? Is there any one here who has had no failure in just such cases? Yet some insist that practice is a better thing than theory. The theoretical filling would last forever. How many of us even approach the ideal in matters of this kind?

It is related of an ancient sculptor, that he once finished a statue in which he could see nothing to be desired, could find no flaw, either in conception or execution. After examining it carefully, he burst into tears, exclaiming, "I have reached the limit of my powers, I must now go downward."

This was his ideal—his theory, wrought out in his practice—his art.

We are ever desiring something better, something higher, than our present attainments. A life without ambition is not worth living.

We are justly proud of the progress which dentistry has made in the last century. Who has brought this about?

How much has the intensely practical man done to help the cause along?

Are we not rather indebted to the men of deep thought, earnest research, and careful theorizing?

The progressive men of the profession are those who "observe, compare, reflect, record," attend societies and conventions, and give to others less highly favored, the benefit of their knowledge and skill.

Routine practice is like a boat with but one oar, no matter how hard the rower may work, he makes no headway, but circles round and round.

Theory alone, would turn the boat in the opposite direction.

It is only when both oars are used alike that satisfactory progress is made.

It is only when theory and practice supplement each other, that a man is truly successful.

A painter was once asked with what he mixed his colors—"with brains," was the reply. Why should not a dentist fill teeth with brains? A man must know something before he can practice it.

A man of many theories is necessarily a thinking man.

The objection urged against theories is that none of them are absolutely true. But what of that? A theory which is more than half wrong may yet be valuable.

Think how much good has been done by the "new departure theory."

Sprung upon the profession just at the time when Dr. Webb was demonstrating the possibilities of cohesive gold, it aroused opposition at once in all parts of the country.

Some, perhaps, who had no theory, and lacked the practical ability to properly insert good gold fillings, joined the "putty workers," and by paying proper attention to plastic filling materials, learned to save teeth which they would otherwise have destroyed.

On the other hand, the vast majority of dentists were stirred to opposition by the charges preferred against gold, and to prove them false, gave more earnest heed to its proper insertion, and so became more careful operators than they would have been, had nothing roused them from their routine work.

Another good result of this theory, and the controversy it provoked, has been the number of new filling materials which it has indirectly developed. We have numerous oxyphosphates, oxychlorites, oxynitrate, gutta perchas, amalgam and alloys. All these are more or less valuable, tending toward the ideal filling of the future, which we all agree, must be in the form of a cement, easy of insertion, indestructible, and corresponding with the tooth in color.

Thus far, we have dealt only with the mechanical part of dentistry.

According to a recent writer, operative dentistry consists in preparing a tooth for the reception of a filling; the plugging being a mechanical operation.

Some teeth, therefore, according to this definition, require but little operative skill.

The treatment of diseased teeth has recently absorbed a large share of the dentist's attention.

"How shall we make this aching tooth comfortable?" is a question constantly recurring in the practice of dentistry. Perhaps the pulp is partially dead, and the pulp-canal is so small that, with our finest instruments, there is danger of forcing some foreign substance through the apical foramen. Would it not be delightful if we could dissolve the pulp, and then by the aid of capillary attraction, and a few strands of cotton, completely remove it?

Pepsin dissolves albumen and blood, and breaks down muscular, nervous and connective tissue. Why not, then, apply pepsin for a few hours to the semi-devitalized pulp, and afterward absorb the fluid mass rapidly and painlessly?

A few years ago a preparation of pawpaw was used successfully for this purpose, but the remedy was rare, and the preparation unstable. Pepsin is common, and promises better results. In the few cases in which I have tried this plan, I have been only partially successful, but I am still hopeful.

Theory leads to experiment, and while experiment may not confirm our theory, it may result in some important discovery. If pepsin and pawpaw will not do the work of arsenic and a nerve broach, something else will, and that without injury to the tooth; and if we continue our investigations, we may find what we seek.

The preparation of pepsin which has given the best results in my hands is "Wm. R. Warner's liquid pancreo-pepsine."

The powdered pepsins do not act well, as the limited space in the pulp cavity makes their thorough application almost impossible.

When the pulp was found alive, I have used chemically pure acetic acid, instead of carbolic acid, to obtund sensibility and coagulate the albumen.

In experimenting, I found that when coagulated with carbolic acid, albumen was not acted upon by pepsin, but when coagulated by acetic acid, the digestion was good.

If this little theory of digesting the dental pulp, proves worthless, it will do good to, at least, two members of this Association,

by directing their attention for a few months past, to the treatment of the pulp.*

The field of theory is a large one, and "the fence is down." There is no need of crowding, although our theories are often directly opposed to each other.

If we wish to learn anything, we must seek it, and in the mere mechanical operations of filling up holes in teeth, there is little to arouse enthusiasm, or create a love for our profession. And unless we love our work, we can never be successful in it.

Without theory we have no profession. Filling teeth is nothing but a trade.

Theory is the head which commands—practice, the right arm which obeys.

Let us shun hypotheses and vagaries, but cling to theories.

Let us prove all things, and hold fast, that which is good.

PRE-NATAL INFLUENCES AS AFFECTING THE TEETH.

BY GEO. H. CUSHING, D.D.S., PROFESSOR OF OPERATIVE DENTISTRY IN THE
CHICAGO DENTAL INFIRMARY.

[Read before the Central Illinois Dental Society.]

IN considering the pre-natal conditions that may influence the character of the teeth, we must start with the proposition that perfect and healthy children can spring only from perfect and healthy parents.

While this implies that just so far as the parents diverge from the conditions of physical perfection and health, just so far will the offspring be physically imperfect and unhealthy, yet it will hereafter be seen that this proposition must to some extent be qualified.

Considering man simply in the nature of an animal, it would seem not unreasonable to suppose that if he were living in a purely natural state he would be almost or quite free from defective teeth.

*Since the above was written I have found articles bearing on the same subject, in the Missouri Dental Journal, vol. V., pp. 62, 79, 145, 174.

The method of these writers was similar to mine, and the results were very much the same.

So far as we know, the wild animals are, as a rule, exempt from diseases of the teeth, and they reproduce their kind with close approach to perfection of type; and, were the animal *man* under like natural conditions, the same results ought to be predicted of him.

But whether the conclusions naturally to be drawn from the last proposition, viz., that decay of the teeth is a disease due to civilization, be accepted or not, it probably will not be denied that man is living, in a certain sense, in an unnatural condition, and that the state which we term civilization tends more and more to force him into artificial conditions of life, farther and farther removed from the simple methods intended by nature for his existence, and that this must tend in a greater or less degree to modify his physical status.

So we are forced to consider this question from the standpoint of the present status of man with reference to his perfection or otherwise as an animal, and his healthy and unhealthy condition.

Under what conditions, then, do we as a general rule see the reproduction of the species conducted? In no case where either parent is in a perfect physical condition, and often with one or both parents in an absolutely unfit condition to become progenitors because of their being in a pronouncedly unhealthy condition.

Parents in the last stages of consumption, with incurable diseases of many kinds, with scrofulous diatheses, and those with constitutions utterly wrecked by over-indulgence and long-continued violation of the laws of health, or by reason of repeated attacks of various acute diseases, are continually and always bringing children into the world.

What can be expected of the offspring of such parents? Only that their organizations will be to a greater or less extent imperfect even under the most careful attention to the conditions of the mother during the period of gestation and lactation.

In so brief a paper as this, it would be impossible to go to any extent into the consideration of all the pre-natal influences which might modify the condition of offspring. The laws of heredity under which certain types may be handed down from remote ancestors; the accidents and acute diseases to which the most healthy women are liable during pregnancy; and the seeming contradictions of physiological laws in well-known observed

cases, all these things have a marked influence, but they can be only incidentally alluded to.

Under the general proposition that only healthy parents can produce healthy offspring, it becomes apparent that the utmost care and attention should be given toward perfecting the health of the mother from the moment of conception till she ceases to nourish her child.

This care of course secures the highest possible development of the child in all respects, but its importance as regards the teeth is greater than in any other direction, for the reason that the teeth retain with comparatively little modification, the character which is given them at the time of their formation. The other parts of the body may have been but imperfectly nourished and so but imperfectly formed and developed and yet the recuperative power of the constitution may subsequently bring up to a near approach to health that which was imperfectly begotten, while the teeth will always bear testimony to their imperfect original construction. Consequently everything that tends to promote the health of the mother is indispensable to the perfection of the teeth, while everything calculated in any degree to lower the standard of health in the mother will be sure to prove more or less injurious to the teeth of the child.

It would be a work of supererogation to enumerate here the course and methods that mothers should pursue to secure the highest physical condition,—the whole matter would be summed up by saying she should conform entirely to hygienic laws, but it will never be out of place to emphasize the importance of mothers giving extraordinary attention to this subject.

You need only to cast your glance upon a hundred mothers whom you have known during the period of the rearing of their young, to note how entirely indifferent they generally seem to be with regard to this matter. The lives of excitement they lead, the late hours they keep, the pernicious habit of tight-lacing that many of them follow, their neglect of exercise and the kind of food they eat, all tend to show their indifference, while the persistence in such habits can tend to but one result, viz.: the bringing into life of very imperfectly formed and poorly nourished offspring.

In a general sense there can be no controversy with regard to the propositions thus far so briefly laid down, and yet we see

occasionally seeming contradictions of them. We may sometimes see parents of very poor physical condition, and whose teeth are of the poorest quality whose children will prove to be remarkably healthy and their teeth will astonish us by their strength and immunity from decay (caries). In such cases the law of heredity may and doubtless does play an important part, and the child probably inherits from remote ancestors the fine physique and strong teeth which belonged to neither of his immediate ancestors.

On the other hand, we may see the very reverse of this in the case of parents who are in comparatively perfect physical condition, with strong and sound teeth, whose children will have an imperfect physique and very frail teeth. The same law of heredity may also explain this anomaly.

Again, we may find that a mother who will be in miserable health during the entire period of utero-gestation, whose appetite will be poor and capricious, and who does not take sufficient or properly nourishing food, may bring forth the most robust and healthy child, while on the other hand a mother who may pass through this entire period seemingly in perfect health, and who may strictly observe hygienic laws, will produce a delicate and sickly child. The last cited cases are in seeming contradiction to physiological laws, but they, with the others referred to, are only exceptions to the general rule and must not be counted on as any excuse for the slightest relaxation of vigilance over the health of all mothers during the period of gestation and lactation.

Of the influence of food upon the teeth, it might be thought that what has already been said would cover the whole ground, but it does not fully do so. Of course, if we had healthy parents to deal with, and they understood the laws of hygiene, and appreciated the importance of the strictest compliance with those laws, there would be no necessity for saying anything more. But, unfortunately, we have not such people to deal with generally; and sometimes those who have an understanding of what is proper, and who seek to do all in their power to secure the highest physical condition for themselves, and consequently for their offspring, are unable, from diseased or morbid conditions, to obey every hygienic requirement. Many mothers, during the period of child-bearing, are very capricious in their appetites, often craving food that is the least desirable for them on general principles, and leath-

ing that which would most certainly supply the requisite elements for their own and their child's complete nourishment. In such cases we must attempt to supply, by artificial means or by specially prepared foods, the elements which fail to be assimilated in the ordinary way.

As affecting the teeth especially, though also the general system, the lack of the phosphate of lime in the tissues, is particularly observed in cases like those just referred to. These phosphates should be furnished in the ordinary diet in ample proportions; but in some cases, as above stated, the mother can not, and in others *will* not, use the proper diet; while in other cases, in which the most desirable food is taken, and, although digestion seems to be perfectly performed, yet the phosphates are evidently not thoroughly assimilated.

In many cases where the phosphates fail to be assimilated from the natural food they do seem to be from other sources.

It has been claimed by some practitioners that they have succeeded in materially improving the conditions of the teeth of offspring by the administration to mothers during pregnancy of the crude phosphate of lime.

Later, the syrup of the lacto-phosphate of lime was introduced and extraordinary claims were made for it by the French physician who first called attention to it. He claimed that by the preparation of the phosphate of lime with lactic acid it was partially digested before being taken into the stomach, and thus was more easily and surely assimilated. Many practitioners, both of dentistry and medicine, feel confident that they have seen excellent results follow its use.

Another form of phosphates which greatly commends itself, is the preparation of wheat phosphates made by E. H. Sargent & Co., of Chicago. This seems to furnish an admirable method of administering the required elements, and is, perhaps, preferable to any other. It is simply a condensed and easily digested form of phosphatic food, though there may be cases in which the syrup of the lacto-phosphate of lime would be more easily tolerated.

There can be no question that the habitual use of Sargent's preparation, or of the syrup, by mothers during pregnancy and lactation, is likely to prove beneficial to the teeth of the children, and also to those of the mothers; and it should always be prescribed where there is probability of imperfection in the dental organs from either inheritance or impaired health of the mother.

The administration of either should be intermittent—that is, it should be used, say for a month, and abandoned for a month, then resumed and again abandoned, and so on.

Imperfectly as this subject has been presented, it should arouse the attention of the profession to the importance of urging upon all our patients, who are about to become mothers, the great necessity and the duty of their using every means within their reach that is likely to tend toward improving the teeth of their offspring, and to this end dentists should ask the coöperation of the family physician, and of the husband, which will be readily and gladly accorded when once its importance is apparent to them.

The younger members of the profession should give this subject their serious consideration, for the amount of good they may accomplish by making one of the cardinal principals of their practice the urging of this pre-natal care upon their patient, can never be fully estimated, while the laurels they may win in establishing successful prophylactic treatment will be those they may well be proud to wear.

DENTAL EDUCATION.

BY WILLIAM FRAENKEL, D. M. D., MILWAUKEE.

[Written for, but not read before the American Dental Association.]

GENTLEMEN:—I know very well that in presenting my views on this subject to the profession, I will have to contend against some very prominent men in the same, as well as against long established opinions. But I hope that I can convert at least some of the former, and lay, at the same time, the foundation of a new treatment of this subject, for I hope I can give satisfactory proof of the truthfulness of my position.

Before I commence talking about the subject itself, I will say some words in regard to myself. I know there are some of the gentlemen I have the honor to be acquainted with that will dispute my right to even talk about Dental Education on account of the little experience I can naturally possess. It is true, gentlemen, I am a young man, but I think it is the first duty of the younger members of the profession to interest themselves in a subject that will be of greater importance to them in the near future than to any body else, because in the hands of the younger

members lies the future of the profession of dentistry, and not in the hands of the older members. Those reverend gentlemen will give us kindly their experience, and we will deduct new facts out of it.

Gentlemen, in almost all papers I read about Dental Education, I find the "stereotypic demand": all dentists should be M. D.'s. May I ask what is an M. D.? An M. D., so I shall answer my question myself, is a man, who, after three years of theoretical studies in a medical college, receives a parchment that awards him the title, "M. D." This title indicates that the possessor of it has the theoretical knowledge upon which the practice of medicine and surgery is based. It doesn't indicate, at all, that he is an able physician or a good surgeon. Before he can obtain that predicate, he has to have practice, and, I dare to say, much practice in those branches. Only on account of that I consider a dentist, with a dental college education, far more fit to enter the practice at once, after leaving the college, than the young M. D., because the latter has no practice at all during his studies, while the former has at least some. By reading the different essays upon the subject, I found out that some gentlemen, who advocate the medical education of the dentist, consider it, in the first place, necessary to make him a surgeon; while others have the opinion that a dentist should know the internal use of medicine just as well as surgery. And others have asserted that they even find it necessary that a dentist should know the broad field of gynæcology. (Dr. Truman W. Brophy so stated, at least in answer to a question of mine at last year's meeting of the Illinois State Dental Society.) The first named class, the advocates of surgery, come nearest to the aim I pursue, only I think their way to reach it by a medical college education is wrong. You can never become a surgeon by knowing only the theoretical knowledge; take for instance, the following case:

A young physician, right after receiving his medical degree, takes a fancy for dentistry, enters on a course of dental instruction somewhere, and, after finishing it, commences the practice of dentistry; suppose he has the skill to extract teeth, treat pulps and alveolar abscesses, make nice fillings, insert good fitting plates, in short, to do all the dental work which is liable to come to an average dentist's office. Five years pass by, and now, in the sixth year, comes, for the first time, a complicated and dangerous case of cancer, or even a big tumor in the mouth, or

antrum for his treatment. He is an M. D., very true; he knew the theory of the operation to be performed, no doubt, but he never had a bistoury or scalpel in his hand, and had never performed a similar operation before in his life. Can you approve it, gentlemen, and if a man like that—and the most of them are so—undertakes to jeopardize the life, or at least the health of his fellow beings, instead of referring the case to the hand of the skilled surgeon? I, for my part, would not trust even the life of a dog to such an M. D.

Another case. Some time ago the *Dental Cosmos* told about a case, which happened in England. A boy went into a dentist's office to have a tooth extracted with the aid of nitrous oxide. The dentist administered it and extracted the tooth. The tooth slipped down the trachea and the boy suffocated. The *Cosmos* finished the story by adding that this case was a proof that the dentist ought to be a surgeon first, then a dentist. Does the editor of the *Cosmos* regard an average M. D. who is practicing dentistry as competent to perform such an important and difficult operation as tracheotomy? Instead of an answer on my part, I simply ask how many of the average physicians who are practicing medicine, and not dentistry, would undertake to perform the above mentioned operation? Very few, I can assure you.

I dare to say the study of surgery, without the intention of being a surgeon, and only a surgeon, is nonsense. No doubt dentistry needs surgery to a certain extent, because we are performing surgical operations every day; but at the same time I say a dentist must not spend time to learn how to amputate a leg, or a breast, because he has to amputate or excize a nerve in a tooth. About the surgical requirements which I deem necessary for the dentist, I will talk further down.

Now I will answer to the advocates of the thoroughly medical education of the dentist. I will simply ask some questions: Do you consider it necessary for him to know how to treat typhoid fever, because he has to know that the teeth become reddish during that disease? Must he know the diseases of the brain because he must know the relations of the nerves to the brain? Must he study medical jurisprudence, just for the sake of knowing that the teeth of a hanged villian will take a red color after death? Gentlemen, I may go to the extreme, but that is necessary to show you how easily your position can be shaken.

Last, I will give my long deferred answer to Dr. Brophy con-

cerning gynæcology, by asking him a single question. To do that, I must return again to that first mentioned young physician practicing dentistry. After pursuing dentistry, say for ten years, a pregnant woman comes into his office to have a tooth extracted. After due examination and reflection, he decides for extraction. A premature birth happens, combined with some difficulties in connection with the position of the child. Dr. Brophy, now I ask you, shall this great M. D. take the case under his treatment, or shall he not call a physician practicing medicine and not dentistry? But, gentlemen, I will not only tear down the building, but I will build it up again.

My views about proper dental education are as follows: The greatest damage to the American dentist of the present time is his inferior education before entering the study of dentistry. Change that; make it obligatory for the student to pass a broader examination, giving satisfactory proof of his qualifications. Let me repeat you a little experience I had myself in an American college. I was only a few months in this country when I received a letter from a college fellow. Gentlemen, I would have been ashamed, even at that time, of such a letter, written in the poorest English, full of ignorance, and even of grammatical errors.

We, gentlemen, belong to a profession that comes in contact constantly with highly educated persons. Don't you think a better preliminary education would enable us to do away with the roughness that is so much practiced by our profession to-day, and that lowers the respect of our patrons? Don't you think a compulsory education would do away with the great evil of our day, with quacks and quackery? for only uneducated persons are liable to act as such. The next step, gentlemen, is an extension of time for the study. Let it be made equal to the three year medical course; but don't forget that a year has twelve months, and not four or five, as our colleges count.

Take in everything in the plan of instruction, that has any connection with dentistry. Teach of each medical branch as much as is needed for a good dentist. Make the dental colleges the proper place for the study of dentistry, and not the medical colleges.

Furthermore, regulate the practice of dentistry all over the United States on a uniform plane, and be as rigid as you can be in the enforcement of existing and coming laws, and you will

soon see the good results of it. The profession will be raised. The days of quackery will be numbered, and the American dentist will not be refused the right to practice his profession all over the world.

PHYSIOLOGICAL ACTION OF NITROUS OXIDE GAS.

BY S. E. LIGHTCAP, D.D.S., FERGUS FALLS, MINN.

THE marked resemblance between the effects produced by nitrous oxide and those resulting from asphyxia, was observed by the earlier experimenters with ether, and a few eminent physiologists at once expressed this opinion; but at the present day it is not very generally entertained. The following is a summary of the various facts bearing on the subject, i. e., in regard to the physiological action of nitrous oxide:

It would seem that this accumulated evidence is not sufficient to show that the anæsthesia produced by the inhalation of nitrous oxide is simply asphyxia. Nitrous oxide gas produces in man, even when mixed with air, a feeling of exhilaration, which would indicate that it is not merely a passive agent. I can call to mind no word in modern medical literature which is used with less definiteness of meaning, and which is more frequently misused, than this word, asphyxia. Understanding, however, by the word asphyxia, the condition which arises from an insufficient oxygenation of the blood, or from the accumulation of carbonic acid in the blood, he is by no means inclined to regard such conditions as identical with that produced by the inhalation of nitrous oxide. If there is a close resemblance between these, there are also marked differences. Nitrogen, when inhaled, is supposed to act upon the animal economy solely by the exclusion of oxygen. Nitrogen, when taken into the lungs, gives rise to no feeling of exhilaration, but to malaise, and a sense of impending suffocation, and occasions only symptoms of narcosis and insensibility, after an interval of time considerably greater than that usually found necessary when nitrous oxide is used. There is, however, one condition strikingly similar to that observable after death from nitrous oxide, i. e., the condition of the lungs. These organs are found neither voluminous nor collapsed, of a light pink color, and

generally with one or more small, circular, well defined ecchymotic spots, usually on their posterior surface. These spots are considered as peculiar to death by suffocation, and as distinguishing that kind of asphyxia from the asphyxia of drowning, hanging and strangulation.

The phenomena occasioned by the presence of carbonic acid were then carefully studied. This gas, when pure, is irrespirable; the mixture employed was thirty per cent. of carbonic acid, and seventy of common air. This mixture, when inhaled, produces the peculiar effects of carbonic acid, loss of power of motion, loss of conscious sensation, and, finally, death. The insensibility is not preceded by a period of excitement, such as is witnessed during the inhalation of ether, and more especially of nitrous oxide. Again the after effects following a prolonged inhalation of carbonic acid are observed—the sense of weariness, loss of appetite, nausea, etc. None of these signs of nervous disturbance are commonly seen after the inhalation of nitrous oxide. This is an important difference, not only practically, but physiologically.

After death from nitrogen, or nitrous oxide, the lungs are moderately crepitant; and the blood which escapes from an incision is more or less full of gas bubbles. In case of death produced by nitrous oxide, the bubbles will be found in the bronchial ramifications mixed with mucus, and in one or two instances, the trachea was found filled with rusty, frothy fluid, so common after drowning, as to be almost pathognomonic of that cause of death. The local effects of nitrous oxide were found to be less marked than those produced by carbonic acid. They both act upon the blood corpuscles so as to darken them.

The lividity upon the lips and the darkening of the mucus surfaces, seen every day in the operating room after the administrations of nitrous oxide are followed by an increased exhalation of carbonic acid; and this is so after the inhalation of ether, chloroform, etc.

While it is perfectly evident that nitrous oxide has a strong affinity for the blood corpuscles, it may usurp the place of oxygen in them, and prevent for a time, that combination of oxygen with the hæmatin, upon which the red color of the corpuscles is presumed to depend. Chemistry has not yet shown that it is decomposed in the blood, or that it exerts any of the chemical properties of oxygen on the constituent elements of the blood. The

conditions which obtain after the inhalation of nitrous oxide, ether, chloroform, anæsthetics, are specific toxical properties, which first stimulate, then narcotize, then destroy nervous action; by (a) an interference more or less marked with the oxygenation of the blood, and the consequent imperfect accomplishment of certain chemico-vital processes, by (b) a retention in the blood of a portion of the usual pulmonary exhalations, the two latter and secondary conditions always co-operating with the specific action of the anæsthetic in the production of narcosis, the arrest of innervation, and in the suppression of every functional movement for a time, with a rapid return to health.

Latterly it has been disproved both by experiment and observation, i. e., the theory which for a time prevailed in the United States, "that nitrous oxide acts upon the blood as an oxygenating agent." No experimental proof has yet been furnished that nitrous oxide is decomposed in the blood as nitrous oxide, and as such is eliminated. It will naturally be inferred from this statement that the presence of nitrous oxide in the blood is not indicated by the appearance (except change of color) as before stated.

"PREPARE YE THE WAY."

BY J. H. S., COVINGTON, IND.

As most are aware, doubtless, Indiana has no law regulating the practice of medicine; and any one, no matter what his qualifications may be, has a perfect legal right to swing his shingle to the breeze and say, I am a doctor. The consequence is, Indiana is overrun with quack doctors of all descriptions, and has become a cesspool of medical practice. As soon as a neighboring State passes a law regulating the practice of medicine, then those that *fear the law*, say with one accord, "let us go over to Indiana where there is no medical law to molest or make us afraid." And thus Indiana's medical ranks are swelled by this very *undesirable* element. Let me relate a little incident, by way of illustration, that came under my observation a few years ago. Shortly after the passage of the Illinois medical law a certain Dr.(?) of that State emigrated to Indiana. Some person said to the doctor's daughter, "how long did your father practice medi-

cine before he came here?" "Only a couple years," answered the daughter. "What did he do previous to that?" "Oh, he ran a butcher shop!" It is to be presumed that the Dr. got his medical knowledge from the dispensatory, and his surgery in the butcher shop.

There *was* a medical bill in the Indiana Legislature a few years ago, but it was vetoed by Gov. Williams on the grounds that no provision was made for the "granny" element to practice midwifery. I would like to know what *right* have "grannies," or any others to practice midwifery, unless they can demonstrate their qualifications before a Medical Board!

Thanks be to those to whom the honor is due, we *have* a law in Indiana regulating the practice of dentistry. And we hope to see, at no distant day, the law so amended that it will require dentists to register with the clerk of the county in which they propose to practice.

Now in what way does the absence of a medical law affect the dentist? Several ways, as I will try to show. We have in Indiana scores of Drs. "Mixstrom," traveling through the country, selling on the street corners and at county fairs, some patent nostrum, which is *said* to cure all the ills that flesh is heir to. In former years these Drs.(?), to draw a crowd, would accompany a guitar or banjo with their melodious(?) voices, singing all the popular songs of the day. But within the last year they have resorted to another method, which, although novel, is nevertheless very effectual in drawing a crowd. This method is *pulling* teeth *free*. I have used the word *pulling* as I think it more *expressive* and *appropriate*.

Then there is another class, that travel from town to town, that we shall designate by the name of Drs. "Blowhard." They are usually found at the best hotel in the town, and have with them a "*vitalized air*" apparatus, and advertise largely with circulars and bills, to extract teeth *without pain* by the aid of this *latest* and most wonderful *new* discovery. Thus the street-doctor catches the lower classes and the hotel-doctor the more respectable people; and many *good* teeth are *sacrificed* that could be saved for years of usefulness. The *true* dentist whose *aim* and *work* is the *salvation* of the *natural* teeth, is often regarded as a person inferior in ability to this unscrupulous slaughterer of the Creator's gifts; for "Blowhard" tries to, and *does* create the

impression that the only effectual treatment for a decayed tooth is its removal. Perhaps some may say, "why! does not the *dental law* prevent this?" No, it does *not*! There was in the *dental law* a bar left down for the accommodation of the medical profession, namely, "*nothing in this act shall be so construed as to prevent physicians from extracting teeth.*" And it is through this gap that "Mixstrom" and "Blowhard" creep in. All this has a demoralizing influence on the people, injuring the resident dentist's business and tending to lower the standard of dentistry.

The dental profession of Indiana want this gap closed by a *medical law*, saying *who* those *physicians* shall be.

If this short article shall aid, in any way, in bringing about this result, its object shall have been accomplished.

OUR PROFESSION.

BY GUSTAVUS NORTH, D.D.S., SPRINGVILLE, IOWA.

WE stand to-day a true and honorable profession. A few years ago we were in our infancy and knew but little, because we were not capable of perceiving much. But to-day, with all the advantages, such as colleges, societies, journals and libraries, we have no excuse if found lacking in the end. Man is a precious being and was created for some noble purpose. When we look back over our many toilsome years of labor, we feel proud to know we are numbered among the progressive classes, those that have pressed forward to a higher mark than many that claim a name in our profession. Why, in this day and generation, do men patronize institutions that fall short of a high standard of qualification? It is a detriment to any one to receive a degree from an institution that is not worthy of respect and below a true standard of education.

Students should be encouraged to abandon those ignorant thoughts; and when they attend a college to select one that stands high regardless of the time required to obtain its honors.

We find many persons endeavoring to practice our profession without proper qualifications and ignorant of the true principles of dental science, trying to place themselves on an equality with the advanced ones.

We are not worthy of the name of Doctor except obtained through and by a degree bought with brains and not money.

We have too many dental colleges that fall short of proper requirements. Their grade is far below the standard of a true profession; and there are but few institutions that stand where they should. State societies should require a higher degree of education for membership, and not receive all that apply, simply to increase the list of members, and thus place those that have stepped into our ranks with a few months' preparation on an equality with those that have worked and toiled for years to prepare themselves for their calling.

The medical profession will not receive members without they are graduates from some recognized institution. This makes it an honor to be connected with such an organization. But this is not the case with our profession. All are classed alike in regard to society qualifications. The ignorant boast on the streets and in their advertisements, of being members of such and such societies. We are humbugging the public by misrepresenting them, and placing them on an equal footing with the educated instead of teaching the public the importance of a higher standard of dental education.

Many States have laws regulating the practice of dentistry, and have Boards of Examiners to examine each applicant to determine whether they are suitably prepared to practice. And we are sorry to have to state that many who are members of the boards are not graduates, while some of them never even attended lectures, yet they are chosen to determine who are qualified to practice. Diplomas do not make brains, but they show to the world that their possessors have placed themselves in the true channels of knowledge, or they could not have obtained the honor. Every true graduate should feel proud of his qualifications, and should stand as a living monument in praise of the institution he represents. We should use our influence in favor of colleges that are using every effort to advance to a higher standard of qualifications.

We will admit that many who are not graduates are practicing our profession successfully, but their influence is a detriment to an earnest faithful student. No one stands higher than a faithful student. We should all be students, and work in one grand organization for higher attainments, and we should

endeavor to work up, step by step, till we reach the upper round of the ladder, and thus make man what he was created for—a grand and noble work.

SENSITIVE DENTINE.

BY C. W. BARD, D.D.S., CENTREVILLE, PA.

MUCH has been said and written in regard to the preparation and filling of sensitive teeth; and yet what have we that we can consider conservative treatment?

I think there are but few teeth that cannot be excavated, and filled without local medication, if we earnestly labor for that end. A lady once said to me (after having some filling done in the city), that she was glad she had escaped with her life.

From this remark I will divide dentists into two classes, those who have little or no use for escharotics, and those who cannot do without them.

When we enter the office of the former, we see no outward evidences of a dental office, except the necessary fixtures that are too large to conceal; pictures adorn the walls; choice reading matter is at hand; everything is in good taste.

This is the true dentist. He feels that he has living tissue to operate on, is kind and sympathetic; and to his care is committed a sacred trust; and a great responsibility rests upon him as regard the future of the teeth upon which he operates.

This is almost a panacea for sensitive teeth. Compared to those of the second class, how different! The pictures, perhaps, are replaced by glass cases, filled with old teeth, extracted from time to time, (witnesses of happy events of the past,) forceps, chisels and excavators within sight of his patients, which is encouraging, (especially to those of a nervous temperament.) His manipulations are rough in the extreme. He has seemingly lost all sense of feeling, if really ever any existed. This class have great use for escharotics; and they would almost, in this enlightened period, resort to the actual cautery, to accomplish their work.

The dentine is a very delicately organized substance, and by virtue of its extremely delicate and sensitive character, we should

be judicious in our operations, and not deluge it with those agents which have questionable properties.

Carbolic acid is extensively used as an obtunder ; and it is the safest of the many agents employed. It is also claimed by many that cavities saturated with it previous to filling, are less sensitive to thermal changes, on account of its antiseptic and disinfectant properties.

I believe this to be true, too true, because it not only possesses these properties, but is also an escharotic, and has the power of destroying living tissue. Therefore, in teeth that are soft, with the tubuli open, I believe it does protect them from those changes in many cases, but very frequently at the expense of the pulp, hastening chemical action and decomposition by destroying vitality. In such teeth, instead of deluging them with carbolic acid, I would hermetically seal the mouths of the tubuli, with a film of gutta percha, thereby protecting them from those changes, allowing Nature to complete the work.

Correspondence.

"I charge you that this epistle be read."

"Right is right,
Since God is God,
And right the day will win;
To doubt would be disloyalty,
To falter would be sin."

FREMONT, O., February 15th, 1884.

To the Editor of the Ohio State Journal :

MY DEAR SIR:—On page 86 of the February number of your valuable JOURNAL, I find a communication from Dr. J. B. Morrison, of Indianapolis, Ind., claiming the credit of an improvement I have made to the E. M. mallet for producing single or continuous strokes.

I have never met Dr. Morrison, seen or heard of his mallet, and I have all reason to believe he has never seen any of my electrical devices ; therefore, I think his communication is a little premature. Had he written me, instead of you, I could have

sent him one of my mallets for examination, and given him all the information I could concerning it, which would have been far more satisfactory to him, and a great deal pleasanter for me.

He speaks of having an electric mallet made in 1876, which combined the single and continuous strokes; that he presented it to the dental profession in 1878-79, with drawings, explanations, etc.; that it could be applied to the Bonwill-Webb, and other pluggers, and he did not think there was any great thing in it but the credit, and that belongs to him.

One would naturally infer from reading his letter, that my ideas of this wonderful invention came from him, and that it must be a very complicated piece of mechanism, requiring drawings and specifications showing its wonderful construction—wonderful in itself, and but little in its results.

Now I do not wish to be understood to say I claim priority by any means, as that undoubtedly belongs to George F. Green, of Kalamazoo, Mich. The first electric plugger he made would give a single, distinct and positive blow; and in an instant, without changing the instrument in the hand, could be made to give repeated blows. That was in 1871, seven or eight years before Dr. Morrison showed up in Philadelphia.

My improvement consists of a simple little set-screw passing through the armature plate on a line with the interruptor, so that rod can be lengthened or shortened at will, and thereby producing single or continuous blows; and it *can not* be applied to any other plugger but the E. M. mallet, as it is now made by the S. S. White Dental Manufacturing Company; and anyone having said mallet and a little set-screw, can make the necessary changes, without any drawings or specifications.

Dr. Ames, of Chicago, a former student of mine, has a little device in the form of a switch, by which he can change the strokes of his mallet; and it has been conceded by many to be more practical than mine; and they are not at all alike, although they produce the same results.

I do not consider a single stroke in the electric mallet of very much value, and therefore, have given it but very little thought.

Yours truly,

FRANK CREAGER.

NEW ORLEANS, LA., Feb. 16, 1884.

Dr. Geo. Watt:

DEAR SIR:—Though not wishing to detract from Dr. Morrison's claims, as given in the last (February) number of your JOURNAL, allow me to say that in 1879, and without any knowledge of his efforts in that line, I arranged my Bonwill mallet to give, not only a single stroke, but a double—slow, or rapid one, as well. To any one desiring them, I will cheerfully give directions for making such an attachment; though I have returned to the hand mallet again.

Respectfully,

C. EDMUND KELLS, JR.

With the above Dr. K. sent us a specimen of his tooth-brush, as described in the *Southern Dental Journal*, which is neat and well adapted, especially to the inner surfaces of the teeth.

Compilations.

"Gather up the Fragments."

THE DENTIST.

MEN are now living who, in their youth, never heard of a dentist, and went, when a pair of pincers would not suffice to extract their aching teeth, to the country doctor or to the barber, who put on a turn-key, and dragged the victim around the room, or held his head between his knees, while he tore the incisor or the molar from the jaw. In those days, except where the teeth were sound, which—on account of the simpler habits of the people, and their greater physical strength relatively to the whole mass of the population—was more general than at present, the open mouths of persons over forty years of age presented a spectacle not easily described, and only occasionally paralleled at the present time; while those who illustrated the declaration of Ecclesiastes, that "the grinders cease because they are few," had no means of supplying their place, and seemed prematurely old. Tooth-ache was the common lot of mortals, and fulfilled the statement of LORD BROUGHAM, who in old age, when speaking in the

House of Lords, having trouble with his teeth, paused to adjust an ill-fitting set, saying as he did so, "One's teeth are a trouble from his birth to his death."

DENTISTRY KNOWN TO THE EGYPTIANS.

Though dentistry as a distinct profession seems to be of very recent origin, I am prepared to prove that the Egyptians, who were far in advance of most other nations, had dentists. By reference to *Euterpe*, the second book of Herodotus, and the 84th paragraph, the following will be found: "The art of medicine is thus divided among them: each physician applies himself to one disease only, and not more. All places abound in physicians; some physicians are for the eyes, others for the head, others for the teeth, others for the parts about the abdomen, and others for internal disorders. A physician exclusively for the teeth was nothing more nor less than a dentist.

There are now about 13,000 dentists in the United States alone, and dentistry is here carried to such perfection that American dentists and American dental work are in great demand in the capitals of Europe. Some American dentists have achieved world-wide fame in Paris, and are living there in great wealth.

I have been at great pains to find what a young man who chooses this profession most needs; and what is here presented has behind it the authority of some of the most eminent members of the profession in the country.

CHARACTERISTICS OF THIS PROFESSION.

The early dentists were taunted as "tooth-doctors," and classed with corn-doctors and other specialists who dealt with what are considered the less important, but are often most troublesome, parts of the body. In some sections of the country dentists now occupy as high a plane as physicians and surgeons. Their incomes are as large and their professional attainments as great, and their standing as professional men thoroughly established. The profession is a happy combination of theory and practice, of physical and mental activity, of mechanical skill and scientific study. As many critical questions arise in the practice of a dentist of large business as in that of an ordinary physician, though, of course, the scope of the latter is much wider. Dentists who are competent often have to deal with diseases which would prove fatal in the hands of an ordinary practitioner—necrosis of

the bones of the face and skull, blood-poisoning, and many other things to which certain diseased conditions of the teeth and jaw give rise. The influence of a permanently diseased and aching condition of the teeth upon the nervous system is very great, and, through mastication, good teeth may guarantee good health where bad teeth would certainly cause serious maladies of the digestive organs.

INCOME OF THE DENTIST.

The average income that a good dentist can make in any place, meaning by this a person who has a fair business, for a country town, is from \$1,000 to \$1,500. A dentist located in a country town or a populous center, who has such fine reputation as to draw his patronage from a large area, may rise above this to \$2,000, or even \$3,000, per annum.

In the cities, fortunate men of exceptional qualifications, the best social connections, and the finest locations, have incomes running from \$6,000 and \$8,000 to \$20,000 or \$30,000, while good dentists in large cities are as well paid as physicians who are considered to be prosperous and destined to rise to the front rank. I am not prepared to say that the best dentists receive as high returns as the best physicians. The element of consultation comes in, for which fabulous prices may be paid. Visits, protracted vigils, and exclusive devotion to one family in a critical emergency, also distinguish the physician from the dentist; and special operations, for which only one or few have a high reputation, and which involve great risks to life, enable the eminent surgeon to make any demands which patients, whatever their financial standing, can reasonably be expected to pay. There is no question, however, that dentistry is a remunerative profession, and has many advantages peculiar to itself. The dentist is not required to expose himself, or to go from house to house. His patrons come to him; he does not go to them.

STANDARD OF PROFICIENCY ELEVATED.

The standard of proficiency in this profession has been elevated, and the amount of time necessary to master it gradually increased, and is still increasing. Men of better education are entering its ranks, and preliminary examinations as to general education are required before allowing a student to commence the practice of dentistry. Laws have been passed in many of the

States requiring that dentists be graduates of dental colleges before they can commence to practice. In order to be eligible to membership in the best dental societies it is necessary to be a graduate of a dental college. Great changes in these particulars have taken place in the last ten or fifteen years. From present indications, the time will come when the degree of Doctor of Dental Surgery will mean almost as much as that of Medicine.

Much more attention is now paid to operative dentistry—filling and preserving the teeth—than to the manufacture and fitting of artificial teeth. In this a great change has taken place. Twenty-five years ago, as soon as possible the dentist got the teeth out of the patient's mouth and a contract for a new set, expecting to make his profits upon the manufacture of the teeth and the work done in extracting decayed teeth and roots, and fitting temporary and permanent sets. Then but comparatively little was known about preserving teeth, and filling, except by skillful men, who always existed, was done hastily and painfully. Now it is found that teeth can be preserved almost for a life-time after they have seriously decayed, and men can be found who have a comparatively good set of teeth for the practical purposes of both mastication and articulation who, thirty years ago, in the then-existing state of dentistry, would have had every tooth they now have extracted, and an artificial set put in.

GOOD WORK THE CONDITION OF SUCCESS.

In order to succeed permanently, a dentist must thoroughly understand his profession, and have the ability to do good work. As an eminent dentist observed to the writer, a dentist may be a Chesterfield in manners, but if his work does not stand the test of time he will not permanently succeed. Here the dentist has not the advantage which the physician possesses, for the physician can refer to occult constitutional conditions, and speak of the state of the blood, the heart and the liver, and keep on experimenting for an indefinite period of time before the patient becomes utterly discouraged. The dentist's work is, in most cases, on the surface. If the fillings do not stay, if the teeth continue to ache, if the artificial teeth fall out, rattle, or slide up and down, giving the unfortunate wearer the appearance of a person about to have an epileptic fit, as he shakes his head to prevent himself from suddenly becoming toothless in the presence of his friends or the public, he will not long patronize the same dentist.

MECHANICAL SKILL NECESSARY TO DENTISTS.

A physician may be very skillful without any mechanical skill, though a surgeon cannot be; but a dentist must have the element which the phrenologists, whose terms are better than their theories, call "constructiveness." Every dentist should have these six things: Good ability, good manners, a pleasant address, cleanliness, tact, and a good personal appearance. He is brought into close contact with his patrons, many of whom are ladies and children. He must touch them. He must encourage them; compose them when agitated, and help them to bear protracted, or, what is worse, sudden pain.

* VALUE OF A COURSE IN A MEDICAL COLLEGE.

It is better to take a course in the medical college in addition to pursuing dental studies. Some dental colleges are now connected with medical schools, as the University of Pennsylvania. Though the instruction in anatomy is very good in the best dental schools, and all that is really necessary is given, there are many reasons why it would be better that dentists should be graduates in medicine. The use of anæsthetics is occasionally attended with serious results. To decide when to administer them requires a knowledge of the general condition of the patient, to perceive in an instant whether any evil consequences are likely to occur, to use efficient antidotes—all require, or may in any case require, much medical knowledge. Besides, where anæsthetics are not administered, fatal bleedings have been known to occur. Deaths from heart disease have happened in the dentist's chair, or swoonings succeeding each other until a condition of profound exhaustion and nervous prostration ensued.

ANÆSTHETICS NOT TO BE USED ON SLIGHT OCCASION.

It is proper to say that the best dentists are now discouraging the use of anæsthetics, except in extreme cases. The London *Lancet* has for a number of years been publishing accounts of fatal cases of the use of chloroform, and although ether and nitrous oxide are much less dangerous, the evil effects of their use, whatever *interested* persons may say to the contrary, are sufficiently serious to make it unwise to use them upon slight occasions. It is considered also by thoughtful persons to have a weakening effect upon the moral tone to train youth to seek unconsciousness in order to avoid a slight pain.

TEMPTATIONS OF THE DENTIST.

The temptations of this profession are analagous to those to which the physician is exposed. The dentist does his work in his office, and operates upon both the weak and the wicked, as well as upon the strong and the pure. If he be either weak or wicked, or without self-control, his reputation may be imperiled by an impropriety, or his character ruined by a crime. Such instances, and that in the highest circles of society, have occurred. The adventuress has also been known to take advantage of such situations to ply her trade as a blackmailer.

A CAUTION AND A CONGRATULATION.

The caution is this: As the work of the dentist is an indoor work, and as he is obliged to stand in such relations to those upon whom he operates as to breath an impure atmosphere, if he wishes to preserve his health, he must systemetically spend some time in the open air every day. As his work is very confining, and of such a nature as to tax his nervous system, he must take vacations of a day or so in each month, and of a week or two or more in each year. Otherwise, he will become feeble and nerveless, and a nerveless dentist can neither operate well nor exert the peculiar steadyng influence upon his subjects which is almost as important as skill in his art.

The congratulation is this: That you enter upon the profession at a time when it is universally respected, and when men are ready to pay for professional work in proportion to skill, and not in proportion to the time or brute force it may require. An old surgeon told me a story nearly thirty years ago which is in point. A laborer called to have a tooth extracted. The dentist put on his instruments, and took it out in a moment of time. "What is to pay?" said the man. "Fifty cents," said the dentist. He replied, "Why, that is altogether too much. It didn't hurt me hardly any, and it took only three seconds." "Can't help it," said the dentist; "fifty cents is the price." Five or six months afterward the man, who went away grumbling, came back to have another extracted. The dentist remembered him; put on his instruments, let them slip off, put them on again, pulled the poor fellow all around the room, and at the end of ten or twelve minutes of torture did what he might have done in the beginning, deftly extracted the tooth, with only a moment of pain. "What

is to pay?" spluttered the man, as the blood ran from his mouth. "Fifty cents," said the dentist. We have but one price here for pulling teeth." "Cheap enough," said he; "it 'most killed me, doctor, and you had to work hard to earn your money." The time is past when dentists have to encounter such ignorance.

Bespeaking your tenderest consideration for those who have to submit to your treatment, and urging you to qualify yourself to take high rank in your chosen profession, I express the hope that these hints may be found useful.—*J. M. B., in Christian Advocate, New York.*

EXCISION OF THE LEFT SUPERIOR MAXILLA: REPARATIVE DENTISTRY.

BY O. C. JENKINS, D.D.S., ANN ARBOR, MICHIGAN.

Mrs. MARY F., age thirty-seven, residence Ann Arbor, Mich., admitted to University hospital February 8th, 1882. Six or seven months before she observed a small lump, no larger than a kernel of corn on the left side of the nose, midway between the ala and the inner third of the eye. This had rapidly developed until it closed the eye of that side and projected from the cheek, forming a tumor nearly as large as one's fist. The case was carefully examined by Professor Donald Maclean on February 13th, and excision of the left superior maxilla pronounced imperative. On February 18, the patient was anæsthetized, and beginning at the internal canthus an incision was made along the side of the nose downwards to the mouth. Another lateral incision beginning at the same initial point was carried across the prominence of the malar bone to the root of the zygomatic process. The morbid growth was then rapidly and fully exposed.

The anterior face of the antrum and a portion of the floor of the orbit were found to be invaded, being softened and somewhat broken down. The morbid growth was then separated from the healthy bone by means of a dental-engine saw and the bone forceps; and on the conclusion of this, the whole of the left superior maxilla and a triangular segment of the right (the right central incisor being removed with it) had been excised. The wound

united by the first intention, and when the patient was discharged on March 4th, the cicatrices were almost imperceptible.

April 8. No return of the tumor; the finger can be passed up to the floor of the orbit, and can be seen when pushed behind the anterior nares.

On July 31st, 1882, the patient consulted me, and figure one represents her condition. It will be seen that all the upper teeth on the left side, including the right central incisor and also the maxillary bone up to, and including part of, the floor of the orbit had been removed. The patient complained that since the operation, phonation has been very imperfect, and that when drinking, fluids would run back into the cup—through the nostrils—unless the head was thrown well back.



FIGURE ONE.

After a thorough examination of the case, I proceeded to take an impression, although the difficulties seemed well-nigh insuperable. The requirements were both physiological and æsthetic. I was to restore the impaired functions of mastication, deglutition and phonation, and also, as far as possible, to overcome the facial deformity. I was to supply a symmetrical cheek, to afford a hard palate, to protect the excavated orbit, and to effectively antagonize the teeth. The difficulties are shown in the wood cut made from the cast (figure two), where a good representation of the bucal and nasal cavities are seen.

The impression was made of wax and plaster, and taken in two sections. The wax was carried into the cavity as far as the floor of the orbit, and also into the nasal cavity, thus making a partial roof for the mouth. This was kept in place by an assistant, while I applied plaster, in a large impression cup, firmly against the wax and the muscles of the cheek, retaining all until the plaster had set. The wax had hardened, and the plaster adhered to it so firmly, that the entire cast was removed in one piece—much to my delight.



FIGURE TWO.

Before making a model, I began at the top of the wax and trimmed out the center of it down to the plaster, in order to secure an artificial maxilla of proper weight and form. In grinding and articulating the teeth, I proceeded as one would do with an ordinary vulcanite plate. Figure two shows that there is a new roof to the mouth, (the remaining portion of the hard palate being used for its suction), and a new jaw and cheek bone on the left side.

Figure three shows the patient's appearance after using the artificial substitute for one year and a half. She wears the apparatus with ease and comfort. She can now thoroughly masticate all food; can drink without regurgitation, and articulates distinctly. Her case, which was desperate in the extreme, and, without the operation, would soon have terminated fatally, is another illustration of the results of modern operative surgery. The relief of her annoying and embarrassing condition, that existed after the operation, is only one of the



FIGURE THREE.

many triumphs of reparative dentistry.

[Reprinted from the January number (1884) of the *Physician and Surgeon*, Ann Arbor, Mich.]

Editor's Specials.

"Write the Vision and make it plain."

TRANSACTIONS OF THE OHIO STATE DENTAL SOCIETY.

WE noticed the above volume in a preceding number, and criticised somewhat the manner in which it was gotten up, our principal aim in doing so being to induce the Society to make

better provision hereafter for editing the reports, essays, etc., and to see that the proof reading is properly done. We trust no one understood us as reflecting unkindly on the Recording Secretary or the Publication Committee. After having learned all the difficulties in the way of executing the work, we are surprised that the volume was gotten out at all. Had not the Secretary believed in the "perseverance of the saints," or at least, had it not been for his saintly perseverance, we do not believe it ever would have seen the light. With but four dollars in the treasury, and with none of the papers read before the meeting in the possession of the Secretary or the Publication Committee, the prospect was dark indeed. But the light shined in the darkness, and the darkness comprehended it; for the difficulties were overcome, a fund was created, and the book was issued.

Perhaps it will now be better understood that the papers read before a society and submitted to it become its property, unless special arrangement is made to have matters otherwise. Those societies which do not issue a volume of Transactions are more likely, perhaps, than others, to leave the papers in the possession of the authors, but even these, according to our observation, usually refer them to the committee on publication, thus claiming and disposing of them as their own private property. In reading papers before any of our societies we never thought but that we thus abandoned our proprietary interest in them, unless otherwise arranged by agreement before reading. In 1856 we read "Topical Remedies" before the "American Dental Convention," reserving it exclusively for the *Dental Register*, and the result was that though all the other journals copied it they gave credit to the *Register*. Our article on ammonia, and many others were made the joint property of the author and the society before reading.

But our Transactions are out, and generally read; and while thanking those who took active part to make them the more interesting, and those active in getting them before the profession without involving the Society in debt, let us hope and trust that in the future there will be no repetition of the recent annoyances and misunderstandings. We believe that these originated mainly in a lack of information as to the rights of the Society. Should they again occur, a similar explanation will hardly account for them.

“RIVAL JOURNALS.”

WHEN the *Ohio State Dental Journal* was started, it looked like rivalry with the *Dental Register* and the *Missouri Dental Journal*. The two latter were so ably conducted it was thought a great risk for another to expect patronage so near their neighborhood. The sterling character of the new comer, however, soon drew to itself support, and that without appearing to detract from the others. If rivalry means the development of such dignified, worthy, progressive journals as these three, the more rivalry we have the better. And though the *Missouri Dental Journal* is now no more, its death was not from a want of the severest effort to make it prosper. It is difficult to transplant anything, especially when it is old. And especially when the old gardener is not taken along.—*Items of Interest*.

The above is somewhat complimentary to all three of the periodicals mentioned, and especially so to the OHIO STATE JOURNAL. But we have never felt any spirit of rivalry in conducting the reading pages of the Journal. The “old gardener,” it is true, was “not taken along” when the *Missouri Journal* was transplanted, but we believe he went after his *plant*, and with selected assistant gardeners, has planted it erect again, where it will still bring forth fruit in old age, and where it “shall be fat and flourishing.” But as to rivalry, we are reminded that, in the years gone by, the editors of the *Dental Register*, the *Missouri Journal* and the OHIO JOURNAL all taught in the same dental college, and while we believe that each one honestly put forth his best efforts in the cause which claimed their combined talents, we believe also that no one thought of Doctors Spalding, Taft and Watt being rivals then, and such a suggestion would have been laughed out of the profession. Since that day they have been teaching by journals as well as by lectures, and we doubt not they have felt as co-workers, rather than as rivals; but we presume the *Items* refers to business rivalry among the publishers; but if all read the journals who ought to do so, they can all find ample room.

We verily believe that the advent of the OHIO JOURNAL had a reviving influence on some of the other periodicals in the profession. The publishers gave it such a fine appearance that the others brightened up a little; and the kind friends of the publishers and editor of the new venture gave it such valuable matter,

enabling it to be almost—even altogether original, that the special friends of the others who had allowed their pens to rust on their desks, waked up, wiped the blackened rust off their old pens, and resumed a work for their favorites which they should have never left off. The aggregate result has been a great improvement in professional journalism, except where perfection had been already reached, or where only an earthquake would awaken them.

MISSISSIPPI VALLEY ASSOCIATION.

“FAIR, fat and forty,” are often used together as a complimentary expression in reference to mature matrons. The matronage of this Association is not disputed in the dental profession, and she has lately held her fortieth annual meeting, as usual, in the lecture room of the Ohio College of Dental Surgery, devoting the 5th and 6th days of March to this end.

The officers elect for the ensuing year, are as follows: President, Dr. Wm. Van Antwerp, of Mt. Sterling, Ky.; First Vice President, Dr. F. W. Sage, of Cincinnati; Second Vice President, Dr. A. T. Emminger, of Columbus; Recording Secretary, Dr. A. G. Rose, of Cincinnati; Corresponding Secretary, Dr. A. Berry, 95 W. 7th Street, Cincinnati; Treasurer, Dr. Frank. A. Hunter, Cincinnati.

The subjects discussed at the late meeting, are as follows:

1. Artificial crowns upon roots; best method of adapting them.
2. What means are best adapted for maintaining the teeth and mouth in a healthy condition?
3. What progress has been made in arresting and preventing decay of the teeth in the last five years?
4. In what respect, if any, are decayed teeth better filled now than ten years ago?
5. What valuable medicinal agents have been introduced into dental practice in the last three years? For what purpose is each one used.
6. What improvements, if any, have been made in artificial dentures during the last five years; and what further improvements are desirable?

We hope to have a report of the discussions for our readers;

and, if they do justice to the subjects in the programme, they can not fail to be interesting.

It was probably at the eighth annual meeting of this Association, that we became identified with it, and ever since, we have watched its career with the closest attention. It has done much to form our professional habits, and to develop our lines of professional thought. We hope both its old and new friends will do all they can to advance its interests. Its history ought to call forth their best efforts.

EFFECT OF ALUM GARGLES ON THE TEETH.

M. YOUNG (*Courier Med.*) prescribed a gargle containing a small proportion of alum for a woman suffering from chronic pharyngitis with catarrh of the middle ear. The patient, finding relief, continued its use for some three weeks. But perceiving that, at meals, her teeth began to crumble into little pieces, she consulted her dentist, who considered it due to the alum gargle, as when the enamel is removed from the teeth, the alum breaks down the dentine. To prevent this it is best, immediately after using an alum gargle, to wash the mouth out with a solution of bicarbonate of soda or an alkaline water.—*Med. and Surg. Reporter.*

Alum is a sulphate; and a soda salt is not the best thing to use in neutralizing sulphuric acid. The soda can only divide the acid with the alumina, leaving a part of the alum undecomposed. Dilute lime-water, applied with a medium soft brush will be much better, as lime forms an insoluble salt with the sulphuric acid, and therefore takes it all. A mere rinsing of the mouth, as suggested, will accomplish but very little in the way of guarding against mischief; and these remarks apply to the use of other similar remedial agents as well as to a solution of alum.

We knew a schoolboy who had acquired a morbid taste for alum. He carried a piece of it in his pocket, and much of the time was leisurely sucking it. His teeth were badly abraded, and denuded spots on them presented a darkened appearance. Were they "carbonized" by sulphuric acid, which would be nascent if it let go its constituent bases to take hold of the dentine?

OHIO COLLEGE OF DENTAL SURGERY.

THIS veteran institution held its thirty-eighth annual commencement in College Hall, Walnut Street, Cincinnati, the evening of March 4th, 1884. A large audience, music by Currier's Orchestra, etc., added interest to the occasion. The address to the graduates was delivered by Dr. Frank A. Hunter, of Cincinnati, and is found in the present number. The degree of Doctor of Dental Surgery (D.D.S.), was conferred on the following members of the senior class:

B. E. Burger, Michigan; Wm. L. Campbell, Illinois; H. G. Chase, Indiana; Wm. N. Dorward, Illinois; G. B. Dillon, Illinois; Theo. Erfort, Illinois; E. E. Holloway, Ohio; John W. Huston, Pennsylvania; O. F. Lambertson, Nebraska; A. H. Morey, Ohio; Jesse Magee, Indiana; J. C. McCormick, Ohio; H. N. Renner, Ohio; Carl H. Seeger, Wisconsin; Oscar H. Simpson, Missouri; Frank H. Smith, Pennsylvania; B. Warder Shotwell, Ohio; Edgar H. Wright, Pennsylvania; Frank M. Williams, Colorado; G. W. Williams, Kentucky; W. J. Zinn, Kentucky.

There were 52 matriculants, and 21 graduates. We hope each one will reflect credit on his *alma mater*.

PRIZES.

Three Prizes are offered by the Faculty to the Graduating Class of 1883-4, awarded as follows:

I. A prize of a Gold Medal to the student who shall pass the best general examination. F. M. Williams, Colorado.

II. A prize of a Dental Engine for the best attainment in the Operative Department. O. H. Simpson, Missouri.

III. A prize of a Dental Lathe for the best specimen of Artificial Dentistry. G. W. Williams, Kentucky.

Honorable mention in connection with II prize, W. N. Dorward, Illinois, and E. E. Holloway, Ohio.

THE INDIANA DENTAL COLLEGE

HELD its commencement exercises at 4 p. m., March 5th. Dr. W. L. Heiskell, President of the Board of Trustees, after an address to the candidates, conferred the degree of Doctor of Dental Sur-

gery (D.D.S.) on the following, who had complied with all the conditions requisite to graduation:

Arkley D. Leach, Virginia; Gerritt T. Clemens, Ohio; Jesse A. Bowman, Illinois; Richard Elson, Indiana; Samuel A. Kiser, Indiana; Homer S. Ainsworth, Ohio; D. C. Harold, Indiana; Ernest A. Gillet, Michigan; Merritt J. Kelly, Illinois; Thomas H. Morgan, Indiana; Herbert W. Runyon, Michigan; Charles W. Myers, Ohio; Sanford M. Kennedy, Pennsylvania; Cassius C. Curtis, Ohio; G. Bennett Hough, Pennsylvania; Wilson M. Bayliss, Indiana; Ozro W. Willis, Indiana; Herbert A. Chandler, Ohio; Frank C. Ayers, New York; John H. Adams, Indiana.

Dr. E. F. Hodges addressed the graduates, and S. A. Kiser gave the valedictory.

Twenty graduates is a good showing for a College at its fifth annual commencement.

SOCIETIES.

"Wherewith one may edify another."

CHICAGO DENTAL SOCIETY.

THE regular monthly meeting of the Chicago Dental Society was held at the Dental Infirmary, President Pruyn in the chair.

A large attendance of members, and a few visitors, greeted the essayist of the evening, Dr. Geo. H. Cushing, who delivered a most valuable address on "Facial Neuralgia—Causes and Treatment."

The author introduced the subject by a few brief quotations from standard authorities, defining neuralgia to be caused largely from "peripheral irritation of nerve trunks."

Prolific sources of facial neuralgia arose from peripheral irritation caused by exposed pulps, exostosis, formation of pulp nodules, impacted teeth, salivary calculus, diseased roots, etc.; quoting twenty-three cases which came under the observation of a noted physician, all of which, with but one exception, could be traced to some form of disease connected with the dental organs as being the primary cause. The essayist cited many interesting

cases which came under his own observation for treatment, and which were cured by careful attention to and treatment of the dental organs. He mentioned one character of facial neuralgia which could be traced only to malarial influences, and the necessary treatment for this would be constitutional.

The essayist wished to enforce the importance of a *thorough* examination of the teeth and associate parts for facial neuralgia.

DR. HARLAN—I have listened to this paper with great gratification. Have been very much interested in this subject for sometime, and have devoted considerable attention to its causes and treatment, for the reason that dental practitioners, as a rule, fail to attach the importance which the subject demands.

Thoroughness in examination is necessary, and it seems to be the least understood. Causes of facial neuralgia are the most difficult to determine. All facial neuralgias are not dependent on diseased teeth; and when this is the case, we ought to be able to relieve the sufferings of the patient, and the pain *must* be arrested. I consider the fluid Ext. Tonga in quantity of 30 drops hourly, until four doses have been administered, as being an excellent remedy for facial neuralgia caused by diseased teeth. For local external application, an efficient remedy is found in a saturated solution of menthol in alcohol (60 grs. to oz. of alcohol). This solution must be kept away from the eyes.

DR. NEWKIRK—Causes of neuralgia could be traced to many external influences, such as poor and improperly ventilated sleeping-rooms, want of necessary exercise, imperfect sewerage connections, which allow sewer gas to penetrate the house, etc.

Females are subject to neuralgia more than males, because they are less active in their habits, do not take the same out-door exercise, in other words do not receive the amount of oxygen which the system demands.

DR. ALLPORT—I consider the paper of *more* than ordinary merit, and the only criticism I wish to offer is, the essayist did not lay stress enough on the remote causes of neuralgia. I believe it to be due to a low state of chronic inflammation, and when making a diagnosis for neuralgia, we should direct our examinations minutely for remote causes.

DR. BROPHY—We, as dental practitioners, have to treat neuralgia locally. I believe children's diseases are more or less of a neuralgic nature, especially in early childhood, when the eruption

of the teeth is in progress. We often find pulpless temporary teeth remaining in the jaw, which very much offend the eruption of the permanent teeth, and when those teeth make their appearance, great pressure is exerted in order to gain their position, which must cause considerable pain. Also temporary teeth left in the jaw at adult age might cause neuralgia in the face. He quoted the case of a lady who was cured of facial neuralgia by extraction of the four temporary molars, which caused the bicuspids to become impacted in the jaw.

DR. AMES—I have used the electric current for diagnosis with good results, also have used galvanism for the treatment of neuralgic affections, and found great benefit derived from its use.

R.

CHICAGO, March 4, 1884.

THE OHIO DENTAL COLLEGE ASSOCIATION.

THIS society held its annual meeting, in the lecture room of the college at 3 o'clock p. m., Tuesday, March 5, 1884, Dr. C. R. Taft presiding. The Secretary read the minutes of last year's meeting which were adopted. The Treasurer reported a balance of \$1.70 subject to a bill for \$1.25, leaving a net balance of forty-five cents. (It was suggested that the Treasurer be required to give bond.)

The suits of Rosenthal *et al*, vs. The Trustees, for interest on stock, were reported as having been submitted to the court, on certain agreed upon facts, without argument, for the purpose of appeal to a higher court.

The Dean of the Faculty stated that several shareholders had availed themselves of the privilege of sending a student at a reduction of \$25 from regular rates—amounting, in some cases, to more than had been paid for the stock. Application was made for the issue of a duplicate certificate of stock to Dr. Samuel Wardle to replace one lost by him.

This led to a warm debate, which brought out the fact that the records were not in a condition to furnish much information upon the subject. On motion the officers were authorized to issue a duplicate certificate, marked "No. unknown" to Dr. A. Berry; and if the records show that Dr. Wardle is entitled to a share, to issue a duplicate to him.

In order that a correct record may be made, the officers were instructed to ascertain, through advertisements in the dental journals, who are holders or owners of stock. They want information as follows:

How many shares? Name, if original issue, if not, from whom transferred. Numbers—— Dates—— Interest bearing, or not.

Drs. How, Cameron, and Rawls were reelected trustees. The full board consists of Drs. G. W. Keely, Oxford, O.; C. R. Taft, Cincinnati, O.; James I. Taylor, Cincinnati, O.; James Leslie, Cincinnati, O.; W. S. How, Philadelphia, Pa.; J. G. Cameron, Cincinnati, O.; F. A. Hunter, Cincinnati, O.; A. O. Rawls, Lexington, Ky.; H. A. Smith, Cincinnati, O.

The officers elected were President, Frank Bell; Vice President, J. T. Irwin; Secretary, F. A. Hunter; Treasurer, J. I. Taylor, all of Cincinnati.

Adjourned to meet Tuesday, March 3, 1885.

THE MAD RIVER VALLEY DENTAL SOCIETY

WILL hold its annual meeting in the parlors of the Phillips House, Dayton, Ohio, Tuesday, May 20th, 1884. Sessions begin at 10 o'clock, a. m., 2 and 7, p. m.

Subjects for discussion:

1. The value of pulpless teeth and roots.
2. Inflammation.
3. Alveolar abscess.
4. The promotion of osseous development.
5. Facial neuralgia.

IOWA GRADUATES, ETC.

THE Dental Department of the Iowa State University held its annual commencement March 5th, 1884, in the Opera House. The matriculants of this institution numbered 31 and the graduates 13. There was a banquet and an alumni meeting in the evening—"nice time"; and on Thursday and Friday following, a clinic was held by the faculty on Bridge-work, with Drs. Low and

McGraw. The Secretary should have given us a fuller account, but he didn't.

THE fourth annual meeting of the Texas Dental Association will be held at San Antonio, beginning Tuesday April 29th, and continuing three days, the change in date having been made to accommodate members wishing to attend the meeting of the Southern Dental Association.

GEORGE M. PATTEN,
Corresponding Secretary.

NEBRASKA STATE DENTAL SOCIETY.

THE eighth annual session of the Nebraska State Dental Society will be held in connection with Kansas State Dental Association, at Hiawatha, Kansas, May 6, 7, 8 and 9, 1884.

W. F. ROSEMAN, SEC'Y,
Fremont.

Books and Pamphlets.

"THE ARCHIVES OF DENTISTRY,"

SUCCESSOR to the *Missouri Dental Journal*, has arrived. It calls itself, "A Monthly Record of Dental Science and Art," but for a time its issues will be less than a month apart, as it proposes to make up time so as to start its second volume even with the year. Its first number, though delayed till March, is accordingly dated January. In reference to this an "editorial" tells us that "The first month of the year had about expired when the publication of the *Archives of Dentistry* was first determined on. Since that time matter for this number has been obtained, a printing office organized, and many other things done necessary to the issue of a dental monthly. This number has been prepared by an impromptu committee, temporarily appointed to furnish matter for the initial number, the permanent editorial staff not having yet been chosen."

The general appearance of the new visitor is much like that of its predecessor; but "it doth not yet appear what (it) shall be," but it is in the hands of its friends, (who are our friends, as well) who are capable of taking care of it. We welcome the *Archives* to our exchange list. We expect to greatly enjoy reading it, and may "draw on it at sight" sometimes.

A SYSTEM OF ORAL SURGERY: Being a Treatise on the Diseases and Surgery of the Mouth, Jaws, Face, Teeth and Associate Parts. By JAMES E. GARRETSON, M. D., D.D.S. Illustrated with numerous steel plates and wood cuts. Fourth edition, thoroughly revised with additions. Philadelphia, 1884, J. B. Lippincott & Co., 1037 pp. Cloth, \$8.00; Leather, \$9.00. For sale by RANSOM & RANDOLPH.

THE author says in his preface that every part of the volume has been rearranged, rewritten, or complemented, and we so find it, and with marked improvement. All along through the various editions the author has displayed his familiarity with the subjects he has discussed, and at the same time has shown his mastery of his mother tongue; and this edition shows that he is growing in the skillful use of the language. The added chapters, inflammation and diagnosis, are almost perfect specimens of English literature, the latter especially being so clear and concise that it suggests the crystallization of transparent thought. Only a few can wield so well the prevailing language.

Although we can not agree with the author in all his conclusions, the work, as a whole, is most admirable, and we do not see how any really progressive member of the profession can be content to do without it. The general surgeon will do well to rely on it as authority in operations about the face and associate parts. Neither the dental nor the general surgeon's library will be properly supplied without this book.

TRANSACTIONS of the Illinois State Dental Society for 1883. Just issued for the Society, by Ransom and Randolph. As usual full of rich thoughts both theoretical and practical, and gotten out in the usual fine style. Having seen a number of the papers as the work was progressing we can speak in general terms as to the intrinsic value of the volume, but may have something further to say after we have leisure to give it careful examination.

Our Aftermath.

MISTAKEN ESTIMATES.—A quarter of a century ago, when a meeting of a dental society was held, the impression on the minds of the laity was that the time was wholly spent in fixing prices. "I want to make a bargain for my wife's teeth now, for I reckon you'll charge more when you get back from the meeting," said a stingy, suspicious man, to us once, when we were about to go to a meeting of the good old Mississippi Valley Association. We felt surprised and somewhat indignant; but here is an estimate of ministerial meetings not much more complimentary, and probably not any nearer to the truth.

"A couple of newsboys, Bostonians of course, on Tremont street, opposite the Temple, were discussing ways and means just as the ministers' meeting closed, and the clergymen were coming forth. 'I say, Jim,' said one, 'wot's the meanin' of so many preachers here to-day?' 'Why, answered Jim, scornfully, 'they allers meet once a week to swap sermons.'"

"Jim" is probably one of the boys that made a fortune by swapping jack-knives with his brother when detained in the barn by a thunder storm.

IODIDE OF POTASSIUM IN FRONTAL HEADACHE.—Dr. Haley, in *Australian Medical Journal*, claims that minimum doses of iodide of potassium are of great service in frontal headache. A two-grain dose dissolved in half a wine-glass of water will often cure a dull headache which is situated over the eyebrow. The action of the drug is quite rapid.—*Med. Summary.*

THE ART OF LIVING.—The supreme art of life, above all other arts, is the art of living together justly and charitably. No other thing is so taxing, requiring so much education, so much wisdom, so much practice. How to live with our fellow men! After all knowledge has been exhausted, after all accomplishments have been secured, after every element after which men seek—comes that which transcends all else: How to live justly and kindly with our fellow men. In importance it far exceeds all productive industries which we teach our children; all skill and Knowledge aside from that is nothing. The business of life is to know how to get along with our fellows.—*Henry Ward Beecher.*

"THERE is always room at the top." There never was a truer saying. Yes, there is room and plenty, but no man begins there, and so crowded are the lower grades that many men, with talents brilliant and solid enough to climb to the highest pinnacle of professional fame, stand a brilliant opportunity of being starved out during the early years of the battle.

THE Philadelphia *Record* tells how, at the opening of a clinic in that city, a lady silenced the rude and noisy banter of a hundred and fifty male medical students directed against the three female students present. She rose and told them that she had been for eighteen years a missionary in China, and what

was the imperative need of female physicians there; and she asked of them the courtesy of gentlemen toward the ladies studying medicine in Philadelphia. It was Miss Field, of the Baptist mission, a woman of great dignity and tact, and who, as to learning, would have been a match for the whole one hundred and fifty. Her magnificent dictionary of colloquial Chinese, lately published, is one of the most important philological works of the day.

EXCESSIVE SNEEZING.—Dr. F. J. B. Quinlan (*Brit. Med. Jour.*) suggests the following remedy for excessive sneezing and chronic coryza: R. Morphine hydrochloratis, gr. iv; bismuthi oxynitratis et pulveris tragacanthi, ana $\bar{5}$ ss. M. A little of this powder may be sniffed into the nostrils every five or ten minutes until the distressing symptoms are mastered. It does not render the patient dull, or in any way interfere with mental work.

WHEN a man starts in to plow he stops to see what kind of work he is doing, then stops again and again while drawing the first furrow, but after that goes on almost without lifting his head. We do the same thing when beginning the year, stopping after a few days and weeks to consider our conduct, then moving on in the round that is to carry us to the end. A good beginning is therefore indispensable to our happiness and profit." And to success in professional life as well.

COATED TONGUES.—The *Microscope* gives the following as some of the articles found by microscopical examination on coated tongues. Fibers of wood, linen and cotton; fibers of spiral vessels; fibers of muscle, in one case eight hours after eating; starch grains; cheese mold; portions of potato skin; scales; moths, etc.; hairs from legs of bees; hairs from legs of spiders; pollen of various flowers; stamens of various flowers; hairs of cats, quite common; hairs of mouse, once only; hairs from various leaves; wing of mosquito, once; fragments of the leaves of tobacco, chamomile flowers, etc. A list ten times as long could be made, but *jam satis*.—*Med. and Surg. Reporter*.

It often happens that men who project and carry through great public enterprises find themselves wrecked in the end, the profits of their skill and industry having gone to others. It looks unfair, and it is unfortunate, but there is compensation to fall back upon that, if it rightly be made use of, takes away the sting of the disappointment. Though the gains have been lost, the works remain. The man's mind and conscience that have gone into some great enterprise will never leave it, and he has a treasure stored away there that no change of fortune can ever affect. So long as it exists his rewards exist. It is a low view we take of work when thinking it is never rewarded except when there are equivalents realized in money. The best of these, and indeed the only ones, are those that grow out of the beneficence effected by what we do, and the life that has all gone into something benefitting the race, so far from being squandered, is in the highest sense economized and saved.

OHIO STATE JOURNAL

—OF—
DENTAL SCIENCE.

VOL. IV.

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No. 5

Contributions.

"A word fitly spoken is like apples of gold."—SOLOMON.

SPECIAL INFLUENCES ENCOURAGING SEPTIC DISCHARGE FROM ALVEOLAR-DENTAL TISSUES.

BY FRANK BREWER, D.D.S., SAN FRANCISCO.

ARTICLE III.

To what extent do we find the statement true to the effect "that through an 'elect edict' all teeth with nerves devitalized '*must* be cast off,' even those *abraded*?"

In the May and July numbers of this JOURNAL a modified view of certain conditions incident to nerve devitalization was attempted.

An examination of *some* of the influences promoting those anomalies may be here appropriate.

The original physiological functional capacity still maintained by the alveolar-dental tissue, notwithstanding an absence of a part of their neural allotment, is, we believe, universally acknowledged in cases of teeth the nerves of which have been extirpated by manual exercise, followed by immediate and proper sealing of their apex root apertures.

That a realization of the same function following the recognition of the presence of purulent secretion, is not as universal, may, perhaps, be correctly attributed to the following reasons:

1st. Owing to the needs of a better familiarity of their actological and phenomenal aspect during an *enervated* condition.

2nd. Owing to the arduous and most exhaustive manipulations frequently necessary in reaching those tissues.

3d. Unwillingness to devote sufficiency of time, skill, patience, and care incident to such requirements.

4th. Doubtful expressions from *prominent* sources as to the propriety of such manipulations.

Says the philosopher, "Always are there *two sides* to a question," equally so with the problem of septic discharge.

All will agree that of the varied perplexities following a nerve devitalization, septic discharge would seem most prominent; yet upon seriously viewing the typical conformation of the root of a tooth, and that of its alveolar basis, and again the almost meagre character of its "pericemental" and "periosteal" tissue, and the limited vacuum merely allotted for their expansive exercise, and lastly, their keen susceptibility to the slightest impression arising from foreign intrusion when directed through the pulp chamber and root canals, one could hardly anticipate otherwise.

A retrospective peep through the same glass may not only assist in harmonizing certain issues relating to this most disputable "problem," but, as well, lighten the difficulties of one's conception.

Of the class of teeth presenting an absence of their parent nerve *two* conditions are fully established, one the very opposite of the other.

One presents a condition wherein the alveolar-dental tissues are irritable, fretful, hypersensitive and constantly enervated, and during such phenomena, effect septic discharge.

An opposing phase exhibits not only a calm, peaceful, and quiet state of those investures, but as well, an anti-inflammatory condition, and manifesting most congenial relations with their basic associates; and what is more significant, septic discharge is a *stranger* thereto.

Let us examine well the *first* of these two phases:

An aspect of the former clearly reveals a direct and open com-

munication, extending from the extreme depth of the alveolar pocket to the oral cavity, through an instance of an exposure of the nerve chamber, by which the most delicate of tissues appertaining to the whole human body are *laid bare* to the *rude elements appertaining to that cavity*, the most minute impression of any of which is fully sufficient to aggravate and irritate those tissues to a condition effecting septic discharge; for, mind it, irritation must precede such anomaly.

Of one, let us most especially make reference, and that one is atmosphere *force*—not atmosphere, but its *force*.

Atmosphere, we all know, pervades the whole human body, permeates the most complex part of the organic tissue. Without it the whole must perish.

Already do we find the spaces of both root canals and nerve chamber filled with it, exposed or unexposed, the two differential characters merely find a variation of temperature. But *mark it*, in either condition it is *harmless*, unless *disturbed*!

Hence the character of the impression, and as well, that of the *irritation* following, wholly depends upon the *extent of that disturbance*.

Very well. Now then, first let us examine closely *what part* of the root tissues *first* receives the force of that impression.

An examination of the alveolar pocket reveals a membrane, one side of which is spread over the surface of the entire alveolar wall, and the opposite side that of the *entire root surface* of the tooth implanted within the socket, the same extending to the enamel border. Hence, if true, it must most assuredly envelop, embrace and wholly cover the *apex aperture* of that root.

Again additional inspection exhibits not only an immediate approximation and firm attachment of this tissue to the apex, but as well presents *no avenue* within its body for an escape through it of any or all invading agencies which may be precipitated upon it through the root canal passages. Thus, in the event of an evacuation of the organic contents of the nerve chamber and the root canals, and their exposure to the oral cavity, we perceive that the title of that membrane, *i. e.*, “pericementum” covering the *aperture of the apex*, not only must form the point of contact for the concentration of such invasion, but upon its facial area must fall the *entire burden* of all impressions arising through *compressive forces* happening at and within the crown

apertures. Again do we, upon further reflection, as well observe that in the absence of an aperture within this minute apex membrane and that of an invading force, this tithe of tissue must sustain the volume of air existing within the tooth vacuums. In fact it is poised upon it. Hence, when the fact is realized that the mere approach of the "tongue" to the mouth of the crown cavity is only necessary to heavily compress this volume of air upon this tissue, and under a certain momentum of force, dilate it beyond its elastic capacity, one may easily observe not only how frequently this surface is disturbed, but the magnitude of effect produced.

A root of a tooth with its internal vacuums free of organic tissue, and the apex aperture thus enclosed and exposed to the oral cavity, may be somewhat likened to a common tin horn, with a membranous appendage drawn over its mouth aperture. Now then, let the amateur imagine what would be the effect of an approach to and within its base entrance of a quantity of any plastic agency having a diameter equal to the latter aperture. In this we have an illustration of an increased exercise of compression force during the exercise of mastication.

Now then, let us examine one *special phenomenon* exhibited by this tithe of apex tissue, for upon it rests the pivotal key to future success of the protoplasm of the cemental organism of the point of the root apex, in the death of which the apex becomes absorbed and all is lost.

When enervated, so sensitive is it to agitated impressions, happening within the crown chamber, or mouths of the root canals, that a painful sensation follows the mere penetration of one of our *smallest nerve probes* within that cavity, and, when hypersensitive, even within that of caries where continuous with the former.

If so, how do we account for such phenomenon? *We reply: it is an impression of force acting upon the volume of air within the tooth vacuums, and by that element is carried to and precipitated upon the facial area of the apex tissue, aggravating its already irritated condition. Hence the sensation.*

An apt illustration of this phenomenon is observed by placing an inflamed or abraded surface of the hand or finger upon the fuse aperture of a "gun nipple," and dropping a common sized knitting needle within the muzzle of the barrel.

Let the amateur observe what I now add.

Through this very phenomenon arises the error (and so frequently published) of a presumed existence of a nerve remnant within some certain section of a root canal,—a most fatal error to that operator who worships arsenical palliatives, for woe to the apical tissue throughout the apex, if this cunning, deceitful and most damnable drug once gets there—wet, dry or glycerine added.

In our long experience of dealing with cases presenting secondary lesions following nerve devitalization, which will average from one to two cases weekly, for a period of 25 years; seldom has there been an instance, however sensitive, that has not yielded to the potency of an “anæsthetic” anodyne, or “opiate,” or the employment of a minute nerve drill, when slowly and carefully advanced, if preceded by enlargement of the canal approaching to the affected section.

True, in the more obstinate cases, sectional progression and reapplication of palliatives were frequently recognized; but in any and all cases the drill, or barb, is far safer, and to be preferred to arsenic.

Returning to our subject, we plainly perceive, through this sensation, that instead of the apex tissue being similar in “apathy” to an “alligator’s hide,” and oblivious to intrusion of foreign agencies, *i. e.*, pumping in and upon it through the root canals such substances as “gutta percha,” “shellac,” or other agencies, as some of our prominent “compeers” continually contend, we find its phenomenal nature portrays proof contrariwise. In fact, throughout our whole line of experience have we found this indulgence most *perilous*, and eventually effecting septic discharge; and we would here assert that such declarations are most misleading to an “amateur.” Surely of the truth of this fact (and also that in gutta percha is found *no better virtue* of non-irritation than exists with other materials) one need but observe the anomalous condition of the organic tissue surrounding a carious cavity that may be situated beneath the gum margin, and upon the root area of any tooth, in an instance of a surplus encroachment of that material extending beyond the periphery of that cavity.

True, through an open and exposed surrounding, a “sinus,” and increased tumefaction of surroundings, may be wanting, owing to ample space being present for casting off of effusions emanating

therefrom as rapidly as accruing; but one must be blind if failing to observe the congested and fungoid condition of the contiguous tissue; but with the apical regions and their confinement are far and widely different.

True, in most sanguine cases such intrusion may temporarily exist, independent of exterior manifestations of anomaly within the alveolar pocket, that is to the eye of a non-expert. Nevertheless, root resorption is none the less obviated. Wherever congestion exists, acid is generated, and even otherwise normal nutrition of the cemental protoplasm is certainly denied, and death to that tissue is the better assured. As seven-eighths of our cases are a contratype of such temperaments, and who are already suffering more or less from some organic debility, mal-nutrition or blood dyscrasia, most urgent care is necessary in obviating further complexity when least desired.

Now we arrive at another most especial point for our reflection, and the ignoring of which most frequently leads to septic discharge. Through the immediate approximation of this tithe of tissue, to the root apex, as referred to when normal, food debris upon its arrival thereto is prevented from passing through the apex aperture, and hence becomes stationary, and by added morsels and exercise of compression, becomes so impacted within the more contracted canals or parts of the same as to require *protracted picking* of a *sharp pointed probe* in its *dislodgment*.

Through this occurrence of course a *temporary* cessation of irritation to the tissue by compressive forces, and a more seemingly congenial condition of the alveolar-dental tissues follows, and during a lax condition of the system, of course discharges, mainly of serum, are *quite limited* in *quantity*, and just sufficient to be absorbed by the tissue, or find lodgment within the debris at the apical region, seldom failing to extend so far crownward as to moisten the portion contiguous to the mouth of the canal. And as the quantity is so limited and diffused, gas, if any, is also un-irritating, and the density of impaction also prevents its presence at such section, hence the operator upon reaching said section, concludes that all is well at the apex. And again, as the passage of the probe comes in contact with a *hard, unyielding substance* at some part of the passage, the opinion is at once indulged that calcification of the nerve organ, and obliteration of the canal have occurred. Or again, at least a *curvature of the root* is certain.

Lastly, in wedging of the probe (if pointed), at any part of the canal.

The passage of purulent secretions is deemed impossible, hence long, tapering, pointed agencies are thrust as far within the canal as permissible. Opening and enlarging of these canals are most strenuously opposed, upon a plea of a development of *necrosis*, or fear of establishing *pericementitis*. Through this error have arisen countless failures most perplexing, the period of consummation merely awaiting a period of some constitutional development.

A repetition of instances are hardly necessary here of *facial augmentation* following the insertion of a pivot tooth, or crown filling. Or again, of an absence of plastic agencies which had formerly been well impacted within the root, (though without proper previous treatment) substituted by pus and blood.

Originally we belonged to the class of non-disturbers, but finding the concealed dexterity of cunningness possessed by the alveolar-dental tissues so prominent, we have for years picked in all *dark* places. At the apex is the true seat of disturbance, to that we *must* go.

Of all economical methods of reform, balls or pledgets of cotton, charged with medicaments, and placed within the nerve chamber or mouth of root-canals, are the most slovenly. In fact their presence greatly facilitates septic discharge, no matter how essential the oil indulged, but a very short time elapses for the evaporation or absorption of the medicament. Or even if still retained, and the virtue of the same be non-purulent, yet the fluids eliminating from the apex soon overwhelm its virtue, and by their degeneration, a three fold volume of gas is accumulated, acting the more powerful in its force upon the apex tissue, by dilatation. Of two evils, an empty root or chamber, or untouched canals, is preferable.

In the treatment for purulent secretions, a nice discrimination relative to the character and application of dressings as well as their frequency must be fully observed, otherwise each application may, by forcing the volume of air preceding it upon the tissue, increase the defect remediable. The size of the cotton dressings must be invariably smaller than that of the canal passage, and carefully carried to the apices—thrust or violence being absolutely avoided throughout the entire treatment.

During the gas period temporary aeration of the apical region is of most practical benefit. A few moments of exposure previous to re-application of dressings will go far in reducing the volume of gas secreted at that region.

In the dressings where absorbent cotton is employed and loosely confined during the gas period, this element passes off and atmosphere passes within; hence impaction should be avoided until all purulent discharges have ceased, when more close packing is approvable.

During the presence of purulent secretions, if in profusion, re-dressings should be followed each twenty-four hours, and upon the decrease of such effusions, which soon change from purulent to non-purulent under ordinary conditions, the period of re-applications may vary once a week, and again fortnightly throughout, to entire cessation, when the apex may be properly sealed, which manipulation demands the most skillful and careful adjustment of the sealing agency, and freedom of *impingement* of this tithe of tissue herein referred to. Otherwise a *repetition* of the *same anomaly follows!*

Upon opening into an unexposed nerve chamber, the phenomenon of atmosphere *force* is most frequently observed by a most prominent irritation and inflammation of this tithe of tissue upon the apex, arising by the precipitation of the volume of air within the tooth vacuum upon it through the pressure of the atmosphere without. To lessen the risk of which further manipulations, except simply opening to the nerve chamber with a small drill should be deferred for a period of twenty-four hours at least, in order that the tissue at the apex may become habituated to a variation of temperature, and that of disturbance. But in all events, subsequent manipulations throughout should be most carefully followed.

Mark it that upon opening up and cleansing of the crown chamber and root-canals, two-thirds of the work necessary to recuperation are *already achieved* where a cure is possible. The balance may be left safely to Nature, provided the operator possesses sufficiently of that trait so eminently distinguishing with the general surgeon, and which reaches far above the manipulative dexterity of his scalpel, *i. e.*, just *where* and *when* her work may be *assisted* rather than *thwarted*.

Now then, the opposite phase of condition of the "alveolar-dental tissues," as observed at the commencement of this article

is here reached, the question arising as to what other condition is observed, presenting nerve devitalization which opposes septic discharge.

We reply: First—All abraded teeth, the nerves and canals of which are wholly obliterated through “calcification,” and the crowns of which are not worn below the gum margin, the antagonistic occlusionary force being harmonious.

Second—All teeth abraded, or otherwise, the nerves entire, having passed through a granular or mummified metamorphosis, followed by a natural sealing of their apex aperture.

Third—All crownless roots of similar nerve and canal obliteration through calcification, or the same reduced to a microscopic condition, and with apex aperture fully sealed, provided their approximal periphery is above the gum margin, and supported by contact with contiguous tooth structure, and their poise being normal within the alveolar socket, and as well, their surrounding organic tissue uninfluenced by exterior agencies, *i. e.*, normally preserved.

Who having ripe experience will deny the correctness of these three assertions, and that their period of healthy existence and peaceful relations with their alveolar relations do not extend through—even on to an advanced life.

Hence, if correct, what is the inference deduced? Simply that their alveolar-dental tissues are strangers to foreign intrusion, and free from irritation arising thereby.

The crown chamber being sealed, the organic tissue therein is protected, while the silent and mysterious beneficence of Nature, in adapting necessity to suit circumstances is being fully and secretly carried out.

In the arrestation of this most occult process, if previous to entire consummation, what follows? Decomposition of the remnant organic tissue, followed by gases, through which the volume of air enclosed is increased, and for the need of sufficient space, is *forced* most precipitately upon the tithe of pericementum *covering* the *apical aperture*, by which the same is dilated far beyond its elastic capacity, and ending in congestion and inflammation, and their sequel, septic discharge.

Hence, if true, the *irritant* is *first absolutely necessary*, and the true secret of the “knot” is in its *prevention*.

Thence the question of the hour is *not* as to the possibility of

the alveolar dental tissues, peaceably tolerating the presence of teeth having devitalized nerves (in error termed "dead teeth"). But the issue is to the effect of the possibility of their recuperation, when once lesioned.

We reply that recuperation is so possible that the osteoblastic function may, by careful nursing and protection, be brought to that original condition, reëstablishing its natural privilege, hence opposing all tendency to the fulfillment of any skeptical idea of being cast off through an "elect edict."

PHOSPHATE OF LIME AND THE TEETH.

BY PROF. C. M. WRIGHT, D.D.S.

[Read at the Fortieth Annual Meeting of the Mississippi Valley Association of Dental Surgeons.]

THE dentist who is fond of study, and who can take pleasure in his library, should be glad that he is alive to-day; for he need never have *ennui*. He can, at any spare moment, or during the intervals of dreary labor for daily bread, turn his attention to any of the many fields now open to his mind, and wander therein to his heart's content; finding on every side interesting curiosities and unsolved riddles, the solution of which promises so many benefits to mankind. Even if he cannot, or will not, throw off his coat and take hold boldly and patiently with the enthusiastic workers in any particular field, and is content simply to walk through, looking on at the work as it progresses, his mind will be refreshed by the view; his interest must be unchained, and, by reflex action, his happiness will be increased. If he enters the field marked, "Etiology of Dental Caries," and follows the distinguished and busy laborers (with Miller now at the head, and some noble veterans, who have done splendid work in the past, wiping the sweat from their brows as they, too, rest for a moment to look on with satisfied expectancy at the younger men), he cannot but be deeply interested and benefitted by the knowledge that he will gain of the potent effects of certain acids upon tooth enamel and dentine; of the wonderful parts played by peculiar microscopic fungi upon decalcified tissue; of the possibility of inflammatory changes in the living tissues, and of the curiosities of the minute anatomical structures now more fully revealed than ever before.

If he extends his rambles into the fields of Biology and Embryology, and follows the experiments of the laborers here, in their diligent efforts to unveil the mysteries that envelop Protoplasm, and the advances made in the attempts to sharply define the delicate unfoldings and duplications of the embryonic sheets of the germ capsule, after its unaccountable verification from the churning together of femenoid and masculoid elements, he cannot fail to be impressed. If he considers himself a "practical man," he will nevertheless become convinced, after proper meditation, of the possibilities of all this cultivation of these curious fields, in bringing forth crops of real knowledge—"the knowledge which a man can use"—"the knowledge which has life and growth in it, and converts itself into practical power."

If the dentist's tastes do not encourage him to enter these fields, either as a laborer or spectator, he can turn his attention to objects of interest that appear nearer; objects, however, which may never be brought clearly into the focus of our powers until after the gathering in of the crops of these other fields; objects which can, at present, be viewed *macroscopically*, but which must present new aspects and properties, now hidden, when our knowledge has advanced sufficiently to permit us to prepare them, so to speak, for *microscopic* study.

One of these fields, with the gate wide open, is called "*Food in its Relation to Teeth.*"

While we, I repeat, cannot prepare the objects gathered from this field, owing to imperfect knowledge, we can take the grosser physical properties under observation, and make use of our limited knowledge to a limited extent. Let us see:

First. All agree, not only after careful laboratory experiments, but from empirical observations superficially made at the operating chair, that *dense*, structurally perfect, well proportioned tooth-tissues, are desirable, not only for the purpose of continuous healthy function, but as the best *barrier* against the attacks of the agents that are continually, and more or less vigorously, operating for their destruction.

Second. All agree that structurally perfect tooth-tissues, like all other perfect tissues, depend upon the continuous and harmonious satisfaction, one with the others, in past times and present, of the three great systems of circulation in the body, viz: The Aerial, the Neural, and the Sanguineous.

Admitting, then, that *quality* is of the first importance, and that *quality* is dependent upon harmonious physiological *action*, past and present, can we, at an early or late period in the life history of a tooth, influence its quality by attention to what we to-day believe to be hygienic laws, or by the therapeutic employment of remedies or foods?

Laying aside for the present a consideration of the mighty influence of the great law of inheritance, and the questions that vaguely possess our minds, but upon which we cannot put our fingers, about the incomprehensible facts which lie dormant in the unverified seminal primates, but which will unfold, under certain circumstances, according to some type, which will represent the sum of ages of impressions in the history of the evolution of race—can we by regarding our known, or supposed known, physiological laws, directly prevent pathological conditions of the teeth, or at least directly fortify them against the ever present enemy by an improvement in the quality of their tissues?

Dr. George H. Cushing, in an article entitled, "Pre-Natal Influences as Affecting the Teeth," published in the December number, 1883, of the *Chicago Journal and Examiner*, starts with the proposition that "perfect and healthy children can spring only from perfect and healthy parents," and that we find, "as a general rule no case where either parent is in a perfect physical condition, and often with one or both parents in an absolutely unfit condition to become progenitors, because of their being in a pronouncedly unhealthy condition." It is Dr. Cushing's serious belief that notwithstanding this difficulty, strict attention on the part of the mother to hygienic laws, from the time of conception, will influence, for good, the structural quality of the developing tissues of the teeth of the child.

Chemical analysis has shown that phosphate of lime is an important ingredient of tooth-tissues, and it is deemed necessary that the requisite quantity of the phosphate of lime should be supplied in the food, and that the diligent following of the supposed laws of health in regard to exercise, rest, ventilation, bathing, and other habits, will enable this phosphate to be assimilated and properly appropriated by that form of protoplasm the particular function of which is to form tooth-tissue. Dr. Cushing says that, even when from wilfulness or capriciousness, hygienic measures will not be regarded by the mother, that the habitual use of phos-

phate preparations, either as Sargent's preparation of wheat phosphate, or as the syrup of lacto-phosphate of lime, during pregnancy and lactation, will "very likely prove beneficial to the teeth of the children;" also, "that in many cases where the phosphates fail to be assimilated from the natural food, they do seem to be from other sources."

He believes that we are justified by experience and observation in attempting "to supply, by artificial means, or by especially prepared foods, the elements which fail to be assimilated in the ordinary way." Just here I should like to say, in reference to the opinions of Dr. Cushing, and of the others whose opinions I shall take the liberty of using, that we dare not despise, careful clinical observations, even if they should prove to be at variance with pathological laboratory observation, or, at least, not substantiated by laboratory research. Both should go, hand in hand, and where they seem at variance a more careful reconsideration of all the observations should be made.

Austin Flint has recently impressed upon the medical world the importance of the clinical study of diseases as a safeguard against errors arising from exclusive attention to histological researches. The question of food, in health and disease, is not a new one; but its importance is increasing as our knowledge of physiology increases.

The value of certain kinds of food in excess, in certain diseases, and the necessity for a particular reduction of the daily amount of certain other kinds of food in certain other diseases, is recognized by medical men. The careful classification of the ingredients of the body, and of the ingredients of foods, is the work of the physiological chemist; and the physician or dentist who can best recognize the *demands* of the tissues of the body, for certain qualities and quantities of food, serves best the interests of mankind.

The dental profession has, for many years, through the influence of individual dentists of positive convictions, urgently recommended the employment of bread which has not been deprived of its phosphates by too much grinding or bolting of the grain.

Dr. John Allen, of New York, has long been an apostle in this work.

Prof. Luther Shepard, of Boston, read an article before the

Odontological Society of New York, in December, 1875, on "Food in its Relation to the Teeth." In it is presented the history of a case that had been under observation for several years, in which the teeth, which "were very soft," gradually became "hard and dense," so that "instruments cut with difficulty, and gave out the peculiar, sharp, high tone, so familiar to us, as indicative of well-formed dentine." Prof. Shepard had advised the daily use of oat meal as an article of diet, in addition to the regular mixed diet found on all tables. The patient conscientiously adhered to the prescribed diet, consuming "a saucer of oat-meal twice daily." While admitting "that other causes have, doubtless, contributed their quota to the general result," Prof. Shepard insists that these other causes must "occupy a second place in the production of the result, the patient's general health having undergone no improvement, and no special care beyond what other boys can be induced to take of their teeth having been taken in this case.

In the discussion, which followed the reading of this paper, Prof. Flagg, of Philadelphia, introduced a similar case of marked improvement in the quality of the teeth from the use of oat-meal, cracked wheat, and other such preparations, and gave assent to the general proposition that diet can influence the tooth structure in early life.

Prof. Pierce claimed to have seen a marked improvement in the quality of the teeth, affirming that they had "grown more *dense*" from the use of chalk topically applied, *i. e.*, "rubbed in between the interstices of the teeth upon the gums before going to bed." Prof. Pierce does not explain whether the result was accomplished by a new process of nutrition, by *direct feeding* to the tissue, and appropriation by the tissue without the necessity for the tiresome routine generally required of food—of passing into the stomach, undergoing uncomfortable metamorphoses, and working its way into the blood, and thence to remote tissues, or not. Still, the observation may be accepted, that teeth *do* become denser without the addition of oat-meal, and from some other and mysterious causes.*

*As we have a multitude of observations of this same thing, found anywhere in the floating literature of the dental profession, the question might be asked: How does this happen? It is possible that the thorough and constant employment of any such an acid, or cleansing, or anti-septic means as are so frequently recommended, such as soap suds, chalk, carbolic acid, &c., &c., may, by preventing fermentation and the formation of destructive acid, or, by acting as parasitocides in the immediate neighborhood of tooth-tissue, *induce*, by the *absence* of deleterious acids,

Prof. Hamilton, of the medical profession of New York, who was present at this meeting of the Odontological Society, said that he had in common with other medical men, given some attention to the destruction of the teeth by materials taken into the mouth, but not to the question of the influence of special diet in improving the quality; but was inclined to the belief that it makes but little difference whether we use oat-meal, potatoes, or beef, provided that what we do eat is properly assimilated; claiming "that the human system is not a crucible, or a barometer," saying "we cannot make a general rule, that we can add to the organism a certain amount of the phosphates by putting a certain amount into the mouth. The amount of phosphates to be used by the system will depend upon the digestion."

I have quoted these reports to show that even in this field that appears so near, and so easy to cultivate, there is much more careful work to be done than has yet been given to it, if we would get even a few sound maxims out of it.

Dr. E. C. Kirk has presented some facts of importance on this subject in a paper published in the *Independent Practitioner* for January, 1884. He details observations made upon the teeth of the pupils of the Pennsylvania Institution for the Deaf and Dumb. Dr. Kirk, having had charge of the *mouths* of the three or four hundred children of this Institution, and appreciating the opportunity of observing the influence of a fixed and special diet upon the teeth of such a number of pupils, has tried to give reliable data. He has given the diet table, approved March 1st, 1882, for breakfast, dinner and supper, for each day of the week. I shall not take up your time by quoting the table, rather referring you to a more careful study of Dr. Kirk's article, but will only say that, considering that the Institution is a charitable one, the bill of fare is excellent, not only as regards liberality in quantity, but variety and selection. A half pint of milk, bread, and butter, are the staple articles for breakfast for every day, while eggs, Indian mush, oat-meal porridge, or grits, are alternately afforded for certain days. For dinner—roasts of mutton and beef, steaks, fish, and soup follow each other, according to the day of the

a deposit of the mineral elements in tooth-tissue from the general circulation, making soft teeth become dense and hard under the soap suds and chalk? Do the soap suds and chalk stimulate the living matter in the dentinal tubes to supply the so-called dentine of repair, as certain things are said to make hens lay eggs?

week, with potatoes, beans, beets or turnips, onions, etc., corn starch, tapioca, bread pudding, etc., to make out the different days' fares. For supper—half a pint of milk, bread and butter as regular articles, with either stewed fruit, cottage cheese, molasses, and ginger cakes as the varying articles.

The children coming to this Institution are mostly from the poorer classes, and are not generally in well fed conditions. Their teeth present the varieties of indifferent and poor qualities that we find among badly nourished children. Dr. Kirk has observed a decided improvement in the *density* of the teeth in the course of one year after entering the Institution. He says in regard to the improved teeth; "They will be found exceedingly hard and dense, making the wear and tear on cutting instruments very great. Excavators and chisels have to be tempered to the point of brittleness to be effective in preparing cavities; otherwise they will not cut the extremely hard structure." This is, he claims, the "result of repeated tests and observations carefully made." And he says: "But the most conclusive evidence which I have met with of the value of their table diet, so far as the nutrition of their teeth is concerned is the unusual number of cases of arrested caries, and the formation of the so-called secondary dentine." It is to be remembered that the grits, oat-meal, and Indian meal for breakfast were added to the diet for the express purpose of improving the quality of the teeth. (I do not know whether upon Dr. Kirk's advice or not.)

Now, from what I have here quoted and for other reasons, I think we are safe in believing that the dental profession accept as plausible and possible, the idea that the *density* of tooth tissues can be increased by proper or special nutrition during the period of early development and during childhood, and that an *excess* of the phosphate of lime in the food, or administered in preparations (just as cod-liver oil, for instance, is, in pulmonary diseases; or, iron preparations in ænemic conditions), *may* be as beneficial to the teeth, as it is believed to be to the osseous system at this period. It is also a generally accepted idea as belief in the profession, that teeth may deteriorate in quality, owing to a lack of these phosphates, in the food at any period of life. It is believed that the teeth of females, during gestation and lactation, are deprived of phosphate of lime for the benefit of the bones and teeth of the fœtus or child. There seems to be no question in the

minds of the profession on this point, that phosphate of lime is directly abstracted from the tissue of the teeth of the mother to be used in the development of the bones of the growing foetus. And it is believed generally that the mineral salts leave the teeth in some diseases of middle life, as in nervous affections, and in wasting diseases from decreased nutrition. Can we say, however, that *enamel* is subject to important retrograde and constructive changes within observable limits, dependent upon food or nutrition? Can we say that *enamel* that is firm and resistant to acids this year, may be soft and non-resistant next year, owing to a non-appropriation of phosphate of lime during the year? Can we assert this with scientific accuracy about dentine? Are we scientifically certain that it is the phosphate of lime that is the varying ingredient? Accepting the chemical operation of an improvement in density in children's teeth, from some cause or other, would it not be well to have laboratory observations based on careful chemical analysis and histological examinations? Chemical analysis of a tooth extracted during the time of faulty nutrition, in childhood or in pregnant female, should show a lack of phosphate of lime, while a tooth from the same patient after improved diet or the administration of phosphate of lime, should show a larger proportion of this ingredient; or an analysis of the different tissues of a *dense* tooth should be made, and the patient then deprived, as far as possible, of phosphates in the food for a time, and an analysis for another tooth should be made. This experiment could be made on dogs or cats. Until we can bring these things into a scale, we are simply guessing. Until we can make satisfactory physiological and chemical experiments, noting accurately the quantity of the phosphate in the ingesta, and the quantity of waste disposed of in the urine, feces and perspiration, and can satisfactorily account for the disposition by analysis of the dentine and enamel, etc., how can we say positively, even with our stock of chemical knowledge, that the phosphate of lime in grits, or cracked wheat, or in the syrup of lacto-phosphate of lime, actually goes into the tissues of the teeth? Is it not all supposition on our part, or is it not rather simply deduced from the fact that enamel contains say 855 parts in a thousand of phosphate of lime, and dentine about 643 parts in 1,000; that phosphate of lime is the most important (next to water) of the inorganic constituents of the body; that it exists in a solid form in

the teeth and bones, united with the animal matter? Why have we not pitched upon water as the varying ingredient for the same reasons? There is no part, to be sure, of the body which does not contain, or does not yield upon incineration, phosphate of lime. It has been *said* that the bones of animals soften if the animals are fed upon food deficient in this ingredient. It has been *said* that fractures of the bones of pregnant women do not readily unite owing to a lack of the phosphates. It has been found that during continuous mental labor the amount of the phosphate of lime is diminished in the urine, from which has been deduced that it has some connection with nervous activity. Dusan claims that it accumulates wherever tissue changes are rapidly taking place. It is believed to have the property of aiding constructive metamorphosis. Prof. Cassidy, in a paper read before the Cincinnati Dental Society a month or two ago, but which I have not seen in print, and, therefore, cannot quote from, suggested the possibility of a relation between the increase of the nervous diseases of to-day (neurasthenia, etc.), and the elimination of important nitrogenous elements from our grain food by fine grinding and bolting of the meal. We are informed by those who have studied the development of enamel, dentine, and cement that imperfectly developed enamel continues imperfect; that dentine becomes denser during life by age; that there is a "dentine of repair" occurring at the peripheral ends of the dentinal tubes, nearest to points of irritation, but have we *proofs* that changes in the amount of phosphate of lime take place to and fro, now less, now more, according to the amount taken into the stomach? What might be the proper course for us as practical men to do, if this proved to be the case?

I have a suggestion to make, based on the floating opinions in the profession, the soundness of which I shall leave with you. It is this: Feed your pregnant women with the best preparations of the phosphates; flood them with phosphates during gestation and lactation; flood the children after they appear with phosphates, until by examination with excavators and chisels you find the enamel and dentine as dense as you could desire, then destroy the pulps of all the teeth, to *prevent* deterioration from any possible lack of this element, or from possible impairment of nutrition in after life!! If this suggestion shocks you, I ask, is it not as reasonable as some theories of specific methods of feed-

ing? And have we not as many instances of the saving of teeth by this method—not, indeed, undertaken with this grand (!) idea in view, but accidentally, as can be produced in favor of the feeding process?

Now, having raised as many questions as I can in a paper of this kind, questions, by the way, which I cannot answer, but which may be of importance as showing what a fine field for work this “practical” one offers, I beg to say in conclusion, that personally, I must add that my own empirical (clinical) observations favor the employment of the preparations of the phosphates for *children*. I have tried them for years, in dozens of recorded cases, and must acknowledge that in some way or another, the result has been as satisfactory as the administration of any remedy for any disease. Children have behaved as though under the influence of a regularly administered tonic. Pale children have acquired color in their cheeks. Listless children have waked to new energy. Flabby children have acquired firmer muscles, and dental caries has been checked to a degree noticeable to parents as well as to myself. I have not believed that the phosphates were simply taken up and deposited in the teeth, but could not fail to observe *general* beneficial results, though unable to fully account for the *modus operandi*. I have administered it as Dr. Cushing recommends, as the syrup of lacto-phosphate of lime, given daily for a month in tablespoonful doses and discontinued for a month, and so on. I do not know but that a bit of breakfast bacon, or a small piece of juicy beefsteak, every morning, if agreeable to the taste of the child, might furnish just the right quantity, or just the right excess of ingredients, necessary to produce all the beneficial effects noticed from the syrup. I do not know, also, whether the eating of grits and oatmeal in *adult* life, if assimilation is good, may not be as injurious, and have in its train diseases as serious as those which follow the excess of nitrogenous substances. Certainly, if it is as active an agent as we are led to believe by our reported observations on the teeth, it must play an important role in other tissues, not so easily observed, and we cannot confine it to comfortable normal deposits in dentine.

Correspondence.

"I charge you that this epistle be read."

MARSHALL, TEXAS, March 13, 1884.

Dr. G. Watt, Xenia, Ohio:

MY DEAR FRIEND—I enclose you a calcareous deposit I took from the root of a right molar tooth to day. The tooth was filled some years ago with amalgam. For weeks the lady had been suffering intense pain, and her physician had given opiates and chloroform freely, without giving relief. He advised her to see me. On examination I found the tooth very sensitive and painful, and the patient insisted on immediate extraction. I chloroformed the gum, and proceeded to remove the tooth. In a few minutes she said, "I can hear much better, and feel much relieved." On the patient's retiring I examined the tooth, and on breaking it open I found this deposit, with one end against the upper portion of the pulp chamber, the other end down the pulp canal of one of the roots. The pulp in this root was dead, and suppurating, while it was alive in the other root though inflamed.

The dentine was softened under the plug, immediately over the pulp canal of this root. I send it to you for examination, and you may write an article on it for the JOURNAL, and, if you think proper, send it to the Ohio college for the museum, after you are done with it.

As ever, your friend,

J. B. TULLIS.

Accompanying this is a calcareous nodule of ordinary appearance and size. The restoration of the patient's hearing is an interesting item. We have several times had similar results follow extraction of teeth having hypertrophy of the cement, especially in cases where the third lower molar was the offending organ. Perhaps it was about 1856 that Prof. Joseph Richardson reported a case in the *Dental Register*, in which the entire pulp chamber was filled with deposit similar to this. His article is entitled, "A Tooth within a Tooth;" and we have not seen so large a nodule of the kind since. We presume very many of the readers of the JOURNAL have had similar cases. The reflex symptoms in them often vary with the tooth affected, the extent of the deposit, and the constitution of the patient. We are not able to tell which

tooth was the offender this time, as, by a slip of the pen, the good doctor describes it as "the right superior molar on the lower jaw," which is mixed a little like an effort of a pupil when we were a pedagogue. His little love story began :

" 'Twas midnight and the setting sun
Was rising in the west."

We cordially thank the doctor for the report of the case, and will send the specimen as directed.

Editor of the Ohio State Journal of Dental Science :

ABOUT a month ago a merchant of this quiet little city visited my office to have a badly decayed right inferior third molar filled. The cavity occupied nearly all of the buccal surface and part of the grinding. The enamel, over the portion decayed, had been removed in the process of mastication, leaving the partially decalcified dentine in almost its original shape and of a medium brown color. Although the tooth had not ached, there had been some premonitions. It was sensitive to sweet and sour, and to heat and cold. The gentleman was in excellent health, and of a nervo-sanguine temperament, and about twenty-five years of age.

The rubber dam adjusted, a portion of the dentine was removed and the remainder dried by the use of warm air and alcohol. Carbolic acid was applied and the dentine again dried. About half an hour was occupied in the process of drying. The cavity was then prepared. In this process, about one-third of this dentine was removed, causing no pain, except a very little where it united with the enamel. At these points there was a small amount of slightly moistened white decay. The cavity was then filled with an amalgam said to neither shrink nor expand. In about an hour the gentleman stepped into my office and said he had a violent tooth-ache. I applied listerine and relieved him. In an hour or two he came again having less, but decided pain. Warm listerine relieved him, and to my astonishment I discovered that the amalgam had bulged slightly in the center of the buccal surface, but was still firmly anchored. Since that time he has had no inconvenience from the tooth.

It appeared to me that the reabsorption, by the desicated dentine, of the plasma transuded from the pulp, caused pressure

against both the pulp and the filling, and if the amalgam in its semi-crystalline state had not yielded, pain would have continued, or slow death of the pulp ensued, with or without paroxysms of pain, according to the measure of successful anæsthesia by local applications or systemic administrations. This explains to me the reason for many a tooth-ache in teeth where fillings have been inserted over large surfaces of desicated decalcified dentine. I also reason that, in such cases, when decayed dentine has approached the pulp, that organ transudes plasma containing "calcific salts" in an attempt to produce a coronal or external protecting layer of secondary dentine by depositing the lime beyond the "membrana eboris" and gradually contracting upon itself, or, if the lime-salts are dissolved, by continuing the process takes upon itself a change of a chronic nature, and continues constantly to transude plasma. It seems to me it would be better to gradually close up the cavity when there is a large amount of decalcified dentine to cover, especially if the tooth had been sensitive to thermal changes for several weeks before, or, as often is the case, it has been for several months. Even sealing the cavity with gutta-percha and no opportunity given for the expansion of the dried decalcified dentine during its absorption of the transuded plasma, there will be pain. If the tooth is partially dried and treated medicinally, and sealed with gutta-percha for a few days and then the treatment renewed, again waiting, and then thoroughly drying and permanently filling the cavity, will leave but little doubt as to the result. Am I right?

J. M. H.

MT. VERON, ILL.

Editor Ohio State Journal of Dental Science:

I NOTICED, in an editorial in the February number of the JOURNAL entitled, "Hopeless Sorrow," some remarks that might be construed as reflecting upon my integrity as a member of the Ohio State Dental Society, as well as of the dental profession. I infer from the language used that the complaining journal, the editorial of which you there criticise, is the *Independent Practitioner*.

You say of the reporter, in answer to the complaint of the editor, "He (the reporter) might have reported, word for word, the discussions or the papers read, or given a synopsis of either,

or both, and nobody would have objected." But it is said that near the close of the meeting the Secretary called attention to the fact that he had none of the papers read, and as he was responsible for them, he requested their return to his desk." "It is said the reporter for the complaining journal had gotten them from the authors, who probably regarded him as the official reporter, or proper custodian, and was leaving the Secretary without even copies of them." There are other remarks implying that I am a thief, of which I do not, at this time, propose to take any notice, as I do not attribute to you any desire or intention to misrepresent, and only said what you did on the best of authority as you supposed.

Now, Mr. Editor, the facts in the case are as follows: On the first day of the meeting, just before the noon recess, I asked and obtained permission of the President, to make a statement to the members present, which statement, among other things, was that I represented the *Independent Practitioner* as its reporter. This, I think, fully identifies me, at least in the minds of those then present, as the person referred to in the remarks quoted, of whom you say, "it is said."

As I know of my own knowledge that you were not present at any time during the late meeting—to within about an hour of the time of adjournment—and must have obtained your information second hand, I have to say that your informant was very much mistaken when he (she or they) told you that the reporter (meaning me) took away any of the papers, or copies of any of the papers read during that meeting.

The only papers I took or sent away from Columbus that had any reference to the Society or its doings, were the daily papers, which I purchased, and my note book containing notes of the transactions, which you say I was fully entitled to, even to a verbatim report of all the papers read.

By giving this place in the JOURNAL, you will oblige,

W. P. HORTON.

Some guns go off when but half cocked, and some men have the same trait. It used to be regarded as a fault *in a gun*. When the writer of the above says of our special, "There are other remarks implying that I am a thief"—he has followed the example of the faulty gun; for nothing could be further from our thoughts.

Although he was not at all attacked, as he seems to think he was, we take pleasure in giving him the benefit of his statement. We tried to show that he was a zealous, energetic reporter, only claiming that his zeal outran his sense of propriety, as often happens with novices. We still believe that as he was admitted as a reporter, he could have taken a *verbatim* report of the papers read, without complaint, but we don't think it would have been proper for him so to do, even had he been competent. The whole matter is of but little moment. Our information is mainly derived from the writer himself, and we think his own statements show that he zealously tried to get the papers read into the periodical he represented in advance of their publication by the Society, or by any other periodical. Even if guilty of this he will hardly be hanged for it. With an apology to the readers for taking so much space for this, we will state that this ends it, as far as the JOURNAL is concerned.—ED. JOURNAL.

GENEVA, SWITZERLAND, March 21, 1884.

Dear Doctor Watt:

As there is nothing of interest to write about, I thought perhaps some one might be benefitted by the following methods of mending broken blocks, as well as natural teeth.

It is well said that "necessity is the mother of invention." Not long since, having finished a full upper denture on vulcanite—with much difficulty finding a set of teeth to suit the case, in form, color, size, etc., imagine my annoyance a few weeks afterwards, to have the piece returned with one of the central incisors broken diagonally across. Upon inquiry as to how it occurred, I was answered by the usual stereotyped reply, "Oh, I was only washing them with my tooth-brush." Knowing it to be impossible to find another block to match, I ground the broken tooth down to the gum, as one would for a pivot tooth, and as I had often done before in mending a continuous gum piece, selecting a plain rubber tooth the exact size and shape, ground it carefully and accurately to fit, cementing it in place with a plastic cement, which served to hold it firm and prevent the rubber from coming through to the front. The plate being prepared as usual for mending, the piece was vulcanized. After being finished, no one

could tell that the block had ever been mended. This method of repairing broken blocks, mounted upon Watt's metal, will be found very practical, as it is somewhat difficult to replace a broken block upon that base.

Two years ago I had occasion to make an operation after the following method, since when, I have made several: A young lady had the misfortune to break the outer cusps of the two bicuspid, on the same side, nearly even with the gum, leaving the inner cusps standing with the fillings. To build them up with gold, or other material, would be rather unsightly. She was unwilling to have pivot teeth, and equally so to wear a plate. I decided to restore the lost cusps by the following simple method, which has proved entirely satisfactory and serviceable: With an engine burr I ground down the broken cusp to the margin of the gum, and prepared the tooth to receive the filling. I selected an *eye tooth* of proper size and color, and ground it to fit, soldered a strip of platinum about the sixteenth of an inch in width, and the thickness of ordinary note paper to this tooth, bent this strip around the tooth, in the mouth, as one would a clasp, soldered the ends together, coated the inside of this band thickly with gutta-percha, and the root with the same material to protect it, and serve as a firm base for the tooth to rest upon, warmed the tooth and clasp, placed it in position, and filled up between, one of them, with plastic cement, the other with amalgam. This method can be applied to molars as well, by using the *thin* molar teeth, and a strong band, clasping a remaining cusp, or screws placed in the root canals, the whole secured by an amalgam or plastic filling.

A. A. BLOUNT.

Editor's Specials.

"Write the Vision and make it plain."

MAD RIVER VALLEY DENTAL SOCIETY,

PLEASE remember, will hold its next annual meeting in the parlors of the Philips house, Dayton, on Tuesday, May 20th, 1884. The sessions will begin at 10 a. m., 2, and 7 p. m.

This is the liveliest local society we have; and with a good program, as is provided for the next meeting, we look for a very interesting time. The subjects for discussion are as follows:

1. The Value of Pulpless Teeth and Roots.
2. Inflammation.
3. Alveolar Abscess.
4. The Promotion of Osseous Development.
5. Facial Neuralgia.

It is expected that several papers will be read; and as this Society has no axes—not even a little hatchet to grind—a rich mental repast is expected.

MORE RATHER NOT THAN RATHER.

THE *Journal of the British Dental Association*, of March 15th, notices the *Transactions of the Ohio State Dental Society*, for 1883, as follows: "We regret that we cannot highly compliment the Ohio State Dental Society on the style of its 'Transactions' for 1883, lately received. The professional and scientific value of the contents appears to us to be somewhat below the usual standard, and certainly six misprints on a page (p. 22 for instance) is a state of things which is not creditable to the editor or the Society. We must, however, congratulate both on the economical way in which they manage to publish their volume. The cost for printing and postage on one thousand copies of these Transactions is stated to have amounted to a little over three hundred dollars, whilst the receipts from advertisements amounted to two hundred and seventy dollars, so that the sum actually disbursed by the Treasurer was not a very heavy drain upon the funds of the Society. Our own executive might possibly take a hint from this."

The financial management above alluded to is worthy of commendation, and worth following as an example. And our good brother is not severe in his criticism of the proof reading, as on page 22, to which he refers, he might find as many as ten misprints, while he claims but six, while in a few places, on the same page, the rhetoric badly needs revision. But difficulties occurred in getting out these Transactions which need not, and probably will not occur again, and we hope to see a decided improvement

in the next volume, both in matter and style. Brethren, let us wake up to the real state of the facts. The Ohio State Dental Society is not doing half the good work it can do. Let every member who can write, and there are but few who can not, come up to the next meeting with a carefully prepared paper, on some subject named in the program, or on any subject pertaining to the science or art of dentistry. Ours ought to be the best State society in the profession, but all know it is not. Who is at fault? You and I, reader.

Societies.

"Wherewith one may edify another."

MISSISSIPPI VALLEY ASSOCIATION OF DENTAL SURGEONS.

FORTIETH ANNUAL MEETING, CINCINNATI, MARCH 5TH AND 6TH, 1884.

[Reported for the JOURNAL.]

THE Society met in the hall of the Ohio College of Dental Surgery, President C. M. WRIGHT in the chair, and O. L. Cameron was accepted as a substitute for his brother, the Recording Secretary.

After the transaction of some routine business, DR. F. M. WILLIAMS, of Colorado, was proposed for membership and elected.

The Committee on Publication was instructed to furnish copies of all papers read at the meeting to the *Dental Register*, and to the OHIO STATE JOURNAL OF DENTAL SCIENCE.

The following was adopted:

IN MEMORIAM.

This Association desires to place on record its sense of the great loss which the dental profession has sustained by the death of Professor T. L. Buckingham, of Philadelphia. We may not hope, by any form of words, adequately to express the value of his faithful and life-long devotion to the educational and practical interests of the whole profession; or of his most estimable character as a man. but we offer this heartfelt tribute in token of sincere appreciation of what he has wrought for us. We wish,

also, to convey to his bereaved family, our sympathy with them in this time of their sore affliction and irreparable loss.

The Secretary is instructed to transmit to the family a copy of this record.

In behalf of the Mississippi Valley Association of Dental Surgeons, in annual session at Cincinnati, March 6th, 1884.

W. STORER HOW,
G. W. SMITH,
J. TAFT,
Committee.

The subjects for discussion were then taken up beginning with

ARTIFICIAL CROWNS UPON ROOTS; BEST METHODS OF ADAPTING THEM.

DR. G. W. SMITH, of Cincinnati, read a paper on the adaptation of crowns to roots.

DR. W. STORER HOW, of Philadelphia, followed with a description of his crown and method of mounting it, prefacing with an account of the various ways of attaching crowns to roots, such as the dowel, the nail and the screw methods.

Usually, in attaching the How crown, the root is not sufficiently hollowed out, and the filling is not deep enough to prevent the crown turning on the post. Many of the failures are due to torsion on a shallow filling. In using a short crown, if the pins are folded close to the post there is no space for the cement; this can be remedied by cutting off the pin nearest the cavity in the root, and folding the remaining three about the post, or, if the articulation will permit, by binding the lowest pin around the post and twisting the two upper ones and cutting off the projecting points.

[The speaker exhibited an improved molar crown and a longer and cheaper screw post.]

PROF. H. A. SMITH of Cincinnati, said in cases of badly decayed roots, broken below the margin of the gums, and with a large open foramen, he had experienced considerable difficulty in fixing the screw-post, and getting the proper alignment. Had succeeded in such cases by attaching the post to the crown with cement (phosphate) and forcing them at one push into the proper position in the root. Part of the cement could be cut out and

amalgam substituted. Sometimes filled these bell-shaped cavities with lead and set the post in that.

DR. HOW said the post could be bent by holding the point of a finger against it near the end of the chuck, although there was no hold for the thread on the root.

DR. F. A. HUNTER, of Cincinnati, had mounted ten or a dozen How crowns in the past year, and considered it the best system yet brought to his notice. Where the buccal cusp was broken off a bicuspid, he could make a most satisfactory replacement with a porcelain cusp by this method, and it would be stronger and better than could be done in any other way.

PROF. J. TAFT, of Cincinnati. If all the steps are well taken in this, as in any other, system, it will be successful. Too many are in too much haste to adopt systems they hear described, and expect the best results at once, which can be gained only with patience and experience. Each must work out the details for himself.

In these extremely decayed roots, efforts are sometimes made to accomplish more than is desirable. When there is a marked tendency to inflammation and suppuration, it would be better to make an experimental operation. Of course, where a patient has not these objections, whose health is good, you could safely do these things as illustrated on the blackboard. In cases where the root is decayed off below the gingival margin, see that no projecting points of roots or fillings are left to irritate the membranes. It should be finished perfectly smooth.

PROF. H. A. SMITH agreed with Prof. Taft as to the pathological conditions. He regarded as doubtful ones all cases where a hold could not be had for the screw.

DR. G. W. SMITH had seldom or never met with a root wasted away so far as the one spoken of by Dr. How and others. They are extremely rare cases.

PROF. J. TAFT described a successful molar crown made by and for Dr. Corydon Palmer, a number of years ago. It was carved from walrus ivory, and fastened to the roots with screws.

DR. A. BERRY, of Cincinnati. Although he had frequently set crowns on diseased roots, he had always been afraid of trouble, and cautioned his patrons accordingly. We run considerable risk and should warn our patients first, and then they cannot blame us afterwards.

DR. F. W. SAGE, of Cincinnati, said that although the programme called for "the best method," he thought something should be said about the worst. The Bonwill crown was one of the worst. If amalgam is used to set the crown, the mercury amalgamates with the pin, and it soon breaks off. Had heard others make the same complaint. Had been successful with the Darby method described in Richardson's Mechanical Dentistry. Thought the oxychloride of zinc objectionable as a root filling, because it would wash out. There is danger in forcing fossiline (phosphate filling) into a root. It is apt to excite periostitis. The Darby method consists of a pin soldered to a plate fitting the end of the root and a porcelain face. It has the advantage of a greater range from which to select teeth, and that if it gives way it will be in the attachment to the root,—the fixture being uninjured and can be reset easily.

DR. G. W. SMITH thought he had been misunderstood. The fossiline can be carried up to the apical foramen with cotton. If the band is over the edge of the root the cement cannot wash away.

WHAT MEANS ARE BEST ADAPTED FOR MAINTAINING THE TEETH AND MOUTH IN A HEALTHY CONDITION?

DR. A. BERRY; keep the system in a healthy condition; use plain, simple foods; don't use poisons, such as tobacco, alcohol, etc.; watch the gums and teeth; keep them clean, and go to the dentist often until you are forty years of age.

PROF. C. M. WRIGHT, of Cincinnati, read a paper on The Assimilation of the Phosphates. (See page 218.)

DR. A. O. RAWLS, of Lexington, Ky. Very few understand how to administer complementary food. We must have not only the food, but that which will induce the assimilation of the food. There are not many pregnant women who would undergo the training necessary for the assimilation of complementary food. One-half the trouble in the imperfect development of children's teeth is from want of proper exercise of the organs of mastication. It is a great mistake to force medicine upon a patient, unless the part that the medicine is intended to benefit is properly exercised. The medicine would simply be a burden to the system, and pass out as effete matter. The pampered children of the better classes

are not in want of food, but of exercise. They use mostly pul-taceous foods, and thus fail to properly exercise their teeth.

PROF. H. A. SMITH: There are a great many crude statements made on this subject. Man is omnivorous. The food of some races consists of a mixed diet, of others vegetables and fruits only, others again entirely of meat, and others of fish. Which of these has the best teeth? It doesn't make any difference what you live on. Nature takes the requisite amount of nitrogenous matter from the food. I do not think you can medicate a pregnant woman so as to build up the teeth alone—it will go to the other bones as well.

Climate, environment, etc., all have their effect. One of our children prefers brown bread, the others cannot be induced to eat it; yet the teeth of the first—he is thirteen years of age—require more attention than all the others. His deciduous teeth required constant attention. Milk is the best diet for the phosphates.

Prof. Wright's reference in his paper to the *brown bread* question, reminds us that the comparative value of the albuminoids over the carbo-hydrates contained in the grain of wheat, is not yet settled. The Department of Agriculture, U. S., has recently issued a pamphlet entitled, "An Investigation of the Composition of American Wheat and Corn," in which the author compares the composition of the wheats of several countries; also compares American wheats with those produced in other parts of the world. In the American grain the carbo-hydrates average 72 per cent., instead of 68 per cent. as found in the English wheat; thus indicating, relatively, a smaller proportion of albuminous matter. Our American author laments this, and says, "The albuminoids are regarded as the most valuable part of the grain."

A reviewer, who is connected with a College of Agriculture in England, thinks our author overrates the value of the gluten in wheat. The fully matured and best specimens of wheat contain, he says, a large per cent. of starch. In proportion as the grains of wheat approach perfect development, the starch grains increase in number and weight, the outer layers, which contain the gluten becoming thinner, and consequently the per cent. lessened.

The advocates of brown bread take the albumenoids as the true criterion of quality in wheats; but if the unripe and badly matured wheat is often rich in gluten, as our English scientist states, why are the fine large grains, such as grow in California,

Australia, and elsewhere, selected for food in preference to the smaller, and less perfect wheats, which are richer in gluten? Again, winter wheats, though containing a less proportion of albumenoids than spring wheats, are always preferred by wheat growers.

On the principle of *natural selection* in foods, the statement so often made, that, in proportion as a people are left free to choose the kind of bread they eat, the consumption of superfine flour enormously increases, the rich becoming the consumers of brown bread.

From what I have stated, you will observe that there are those who would take issue with the essayist, and others who maintain that the coarser flours, which contain the largest per cent. of the phosphates, are essential in developing the best type of osseous structure.

I should state, that those who stand for the white as the best bread food, maintain that when the outer coats of the grain of wheat are excluded, there is still enough of the albuminoids remaining to build good tissue, and that in this form, the bread is more of the nature of a true aliment.

DR. WM. VAN ANTWERP, of Mt. Sterling, Ky., thought outdoor exercise an important factor, citing as an instance, the inhabitants of the Scottish Highlands who have good teeth, while in Glasgow they have poor teeth.

PROF. C. M. WRIGHT. In regard to the teeth of the Italians, the subject was discussed by the Society of American Dentists in Europe. The Tuscans, who live on macaroni, had the best teeth. In some parts of Germany they found that the teeth were better than in other parts. In Berlin the teeth were softer than anywhere else,—the needed elements do not seem to exist in the soil. All the discussions are based on the idea that the phosphate of lime is the one essential. I do not believe that it is decided what the one ingredient should be.

DR. SAGE. I have the opinion of several prominent physicians that the administration of the phosphates to pregnant women is not satisfactory. It has been shown that the lime-salts have been freely eliminated from the system during pregnancy.

DR. E. OSMOND, of Cincinnati. The blunder is in giving the hypophosphites uninterruptedly. Give them for two weeks, then omit for two weeks, then give again. In one case where the hy-

pophosphites were given to the mother, the child's teeth were good, and when not given the teeth were bad.

Often where the water is very hard and lime abounds, the teeth of the inhabitants are of very poor structure.

DR. TAFT spoke concerning our everyday practice. Many in the profession are to blame in that they simply do that which they are asked to do. We often find teeth in a filthy condition shortly after they have been operated upon—in fact had been filled with the accumulation of tartar, etc. upon them. In the first place the mouth should be put in a healthy condition before any filling is done. Then the patient should be thoroughly impressed with the fact that the welfare of the teeth depends as much upon the patient as the dentist. The patient should be thoroughly taught how to keep the mouth clean. Then our responsibility ceases.

Even the best fillings in a poorly kept mouth must fail, while in a healthy, clean one, even ordinary fillings will save the teeth. In reference to maintaining the mouth in a healthy condition, that should be studied by us, that we may instruct our patients, as it is a subject not so easily understood by them as cleanliness. I take as much pride in these matters as I do in other operations on the teeth.

DR. E. OSMOND. I first inquire of my patient when and how he cleans his teeth. Then remove all accumulations of tartar, etc., and instruct the patient to use the brush at least twice a day—morning, and especially at night, using a powder. Rarely extract roots at the first sitting, but leave them until I can determine if any can be crowned.

PROF. H. A. SMITH said we should prescribe an antiseptic wash for the mouth. Prefers and uses listerine. The discovery of bacteria in the mouth is not, as many suppose, a new thing. On September 14th, 1883, Anthony Van Leeuwenhoek, of the Netherlands, called the attention of the Royal Society to this discovery by the use of the microscope, of animalculæ in the deposits scraped from his teeth. After drinking hot coffee, he found that they disappeared, but soon reappeared. Later, he made drawings of these parasites, which have probably not been surpassed in accuracy by any modern drawings. I doubt whether the presence of bacteria in the mouth is of any great importance, but we should prescribe an antiseptic to destroy the ferment.

DR. A. BERRY mentioned an examination of the saliva in two

mouths—one diseased, the other healthy. Found bacteria in both, but most numerous in the unhealthy one.

DR. G. W. SMITH. Bacteria may be found in the most healthy mouth, but they are not usually destructive except in very dirty mouths. Always give my patients a pamphlet directing them how to care for the teeth.

DR. J. W. JAY, of Richmond, Ind. There are many patients who think that a tooth once filled must last a life-time without further care on their part. The cause which first induced the destruction of the tooth will, under the same circumstances, undermine the filling. Where the gums are tender I tell them to get a soft brush made of camel's-hair, and use with it an infusion of white oak bark.

DR. E. OSMOND. A soft brush is well enough on soft gums, but I like a moderately stiff brush with the outside row of bristles clipped off a little shorter than the center, so that they cannot make the gums sore. Prefer the genuine unbleached Russian bristle brushes. They will outlast a dozen bleached ones, and the bristles will not come out in the mouth. They should be soaked in water 24 hours before being used the first time. I formerly had to import them from England, but they are now made in this country.

PROF. J. TAFT. The cleansing of the teeth before retiring at night is the true theory, and in many instances, a disinfectant should be used. One who has a pure, healthy mouth, and sleeps with it closed, does not need a disinfectant. Altogether too much importance is attached to the production of the organisms in the debris about the teeth. I do not regard them as prime factors in decay of the teeth; and if the debris is thoroughly removed, and if the patient does not breathe through the mouth, the bacteria cannot be found there.

DR. E. OSMOND agreed with Prof. Taft in regard to the presence of bacteria in the mouth as being of very little importance.

WHAT PROGRESS HAS BEEN MADE IN ARRESTING AND PREVENTING DECAY OF THE TEETH, IN THE LAST FIVE YEARS? AND IN WHAT RESPECT, IF ANY, ARE DECAYED TEETH BETTER FILLED NOW THAN TEN YEARS AGO?

PROF. H. A. SMITH. It might be inferred from the question that we have made little or no progress, which may be true, of filling teeth with gold. I have seen some perfect operations made

sixteen years ago by Prof. Taft, which were as solid as coin; but an advance has been made in the recognition of the histological structure of the teeth. The use of plastics, instead of the harsher metallic materials, is saving many teeth formerly considered hopeless.

Very frequently too much excavating is done, and students cut right into the pulp, because it is easier to excavate in that direction. It takes years to be able to avoid it. All large cavities should be made simple ones, by the use of a cement lining, and then finished with gold or other material.

I do not agree with Prof. Taft in regard to the bacteria—they have a great deal to do with decay of the teeth. I always leave a thick layer of softened dentine over the pulp, in very large cavities, treating with an antiseptic, then dry with the hot-air syringe, and apply alcohol or some agent having great affinity for water. After drying, cover with a film of paraffine, which melts at 110° , is inert, and not attacked by anything. The antiseptic treatment is to destroy the ferment. I think this treating and saving of poor teeth a grand advance.

PROF. J. TAFT. Some progress has been made in that more attention is given to the care of the mouth and the teeth and to the general health—the hygiene of the body. Better appliances are being used in operations upon the teeth, and improved instruments are more generally adopted than formerly. Our young men are now better educated, and they do not wait until some one else has tried a new thing before trying it themselves. The retention of a covering of softened dentine over the pulp is not new; for it has been taught for twenty years.* I prefer a varnish to the melted paraffine, thereby avoiding the heat of the latter; but in some cases it makes no difference. Sensitive dentine occurs to most of us daily, but so many good obtundents have been introduced in the last two or three years that it is now easily managed. Menthol serves a purpose not to be had in anything else. It is an antiseptic, and useful in superficial neuralgia as well as sensitive dentine. For the latter purpose, dissolve a few crystals in alcohol or chloroform, and apply to the cavity. For facial, or any superficial neuralgia, take equal parts of chloroform and tincture of aconite root, add menthol crystals until you obtain a saturated solution, and sufficient vaseline to make a liniment.

*Was taught in the Ohio Dental College in 1853.—ED. JOURNAL.

DR. A. BERRY uses German, or wood, creosote. It has the advantage over American preparations of being free from carbolic acid.

PROF. H. A. SMITH. We ought to have all our foil come to us in an unannealed form. Dr. Corydon Palmer used to tell us that the first annealing gave to gold foil its peculiar property, and each annealing after that destroyed its cohesiveness. I take soft foil and anneal it as I want it. I can't explain why it is so, but as a matter of practice stronger work can be done with it; it can be used more rapidly and takes less force to impact it. It is especially valuable to inexperienced operators.

DR. WM. VAN ANTWERP. I have been using the unannealed and untrimmed foil just as it comes from the vellums. It is soft and not harsh. A second annealing always develops that objectionable crispness.

PROF. J. TAFT spoke of a gold cap, for plastic fillings in large molar cavities, made of foil scraps melted and rolled into plate. After accurately fitting the cap to the cavity he sometimes soldered a small pin or staple on the under side to anchor it in the filling. It should be held firmly in place until the filling hardens. If a phosphate is used, mix it thin and trim away, with a sharp excavator or other suitable instrument, any excess that may press out, and burnish the cap against the edges of the cavity.

In teeth with imperfect tracts in the enamel or dentine, running down into the cavity from the surface, I use a varnish such as copal, etc., to cover this imperfect tract, in many cases where it is not desirable to use the phosphates or tin.

DR. F. W. SAGE. I make a practice of examining the edges of cavities, before filling, with a magnifier, and I think we would be deterred from using gold in many cases if we adopted this plan.

DR. J. R. CALLAHAN, Hillsboro, (in answer to a question about fibrous foil). I use a great deal of it, especially in cavities between the bicusps and molars. So far it has been successful, but will turn black where there is no wear; I use the thinnest sheets.

DR. J. S. McCAMPBELL, Xenia. I find no difficulty in attaching Nos. 30-40 gold foil to it.

DR. A. F. EMMINGER, Columbus. You cannot rely on it unless you condense it thoroughly and are certain that your first piece of gold is attached before adding more gold.

PROF. J. TAFT. I am much pleased with the new globe tin foil, which is very soft and plastic.

WHAT VALUABLE MEDICINAL AGENTS HAVE BEEN INTRODUCED INTO DENTAL PRACTICE IN THE LAST THREE YEARS?

PROF. J. TAFT. Many new agents have been presented which are better than any before used. In many instances all that is required is a knowledge of what we want, and we can select the one best adapted to the case as we would an instrument. Antiseptics prevent the destruction of tissue. Disinfectants simply break up or destroy the offensive matter. The peroxide of hydrogen is a very good disinfectant, but is not antiseptic. It acts by the liberation of oxygen. Menthol, (or peppermint camphor) has been very successful with me for sensitive dentine and facial neuralgia. Salicylic acid is good, but not for everything. Have used it in diseased roots of teeth, but not where there is a low grade of inflammation, as it would simply increase the difficulty. Possibly iodoform is just as good. Resorcin is a very good disinfectant, and far less odorous than iodoform. Oil of eucalyptus is a gentle stimulant, disinfectant, and to some extent antiseptic, but it is best not to use it where stimulation is not desired. Listerine is an excellent disinfectant. It accomplishes as much as the permanganate of potash, and is less objectionable. Have used it as a mouth wash, a tablespoonful to a glass of water.

PROF. H. A. SMITH. Salicylic acid is a destroyer of tooth structure, and therefor less valuable than some other agents. "There is nothing new under the sun." Peroxide of hydrogen was used years ago to bleach teeth. Prefers to use one agent rather than a compound which may be inert. Listerine has not been before the profession long enough to have its value determined. In the infirmary of the college we have tried both the permanganate of potash and listerine, and have given the preference to the former. Creosote has a high place as a deodorizer. The great germ destroyer and anti-ferment is carbolic acid. The bichloride of mercury stands at the head of antiseptics; and I hope Dr. James will tell us about it, as he has used it.

DR. C. H. JAMES, Cincinnati. I did use it in one case and the result was satisfactory. There had been a persistent abscess at the root. Used a solution of one grain to the ounce. Introduced it on a very fine broach, and let it remain 48 hours.

DR. WM. VAN ANTWERP. Physicians do not use it stronger than about 1 in 800. They are now trying to destroy the bacillus of consumption by the inhalation of the corrosive sublimate.

PROF. H. A. SMITH. I wish to call attention to the therapeutic effects of amalgam fillings. It seems to me not impossible that we have a salt, similar to the bichloride of mercury, formed there, which enters the tubuli and prevents further decay.

PROF. J. TAFT. The vapor of mercury is exceedingly volatile, and in many instances it penetrates the dentine, and is there oxidized. The particles of the oxide being larger than those of the vapor that passed in, are unable to get out, and in that way close the opening of the tubuli. That may happen in very porous, but seldom occurs in dense teeth. Notably the soft teeth are most liable to become blackened.

PROF. H. A. SMITH. May not the chlorine in the mouth unite with the vapor of mercury?

PROF. J. TAFT. There is an excess of oxygen in the mouth which unites with mercury to form an oxide. If your theory was correct, there would be a subtile poison formed in the mouth which would make it almost criminal to use amalgam.

Now as to the distinction between *disinfectant* and *antiseptic*. Disinfection is accomplished by breaking up a decomposed mass, taking from it one of its constituents, the remaining portion being inert. Or a new material may be added, making a different and inoffensive compound. Now antiseption is simply the prevention of decomposition.

Oxygen is the great decomposer, but not the only one. Anything that forms an impermeable covering, thus excluding air, produces an antiseptic condition, and decay cannot take place. Carbolic acid forms an eschar of the albuminous matter, and in that way acts as an antiseptic.

DR. W. STORER HOW. A disinfectant may be compared to a scavenger in that it removes the offensive matter. An antiseptic is like a policeman; it arrests the thing causing the trouble, and thus prevents its transmitting the offense to another.

DR. F. W. SAGE. Have used the peroxide of hydrogen as a disinfectant. It removes the offensive matter at the time, but I doubt that it will cure an abscess, although reports have been made to that effect.

DR. N. S. HOFF. Have had some experience with the per-

oxide which has been entirely successful. It has displaced creosote in my practice. In one case of alveolar abscess of six years standing; the pulp dead and process almost gone. Disinfected the canals with the peroxide of hydrogen and filled. Drilled into the process and found a large cavity, which I injected with same agent. The abscess is entirely eradicated, and the tooth which was very loose is much firmer.

WHAT IMPROVEMENTS HAVE BEEN MADE IN ARTIFICIAL DENTURES DURING THE LAST FIVE YEARS?

DR. CLYDE spoke of the great difficulty in selecting a proper set of teeth from those provided by the manufacturers. They are of different sizes and colors, but all alike in general characteristics. Manufacturers seem disposed to have everything just so, beautiful and regular. The very moment a person opens his mouth, the artificial teeth are apparent—walking china shops. It is desirable that the makers change this condition of affairs.

Celluloid is more kindly received by the tissues of the mouth than is rubber, but it wears away more rapidly. Rubber seems to wear away the natural teeth (where it comes in contact with the necks) more than does celluloid. If anyone will take the trouble to work it properly, it does better than rubber for partial plates.

DR. G. W. SMITH agreed with Dr. Clyde that rubber destroys the natural teeth faster than celluloid, but does not believe we can get as good a fit with the latter.

DR. CLYDE. It hugs the teeth tighter than any rubber. Be sure, in pressing, to have enough heat.

I use casting plaster to take impressions. Mixed very thin, using alum in the water. If you use impression plaster, in setting it rises in the centre and spoils the fit.

DR. A. BERRY. The way to prevent partial plates of rubber destroying the natural teeth is to trim them away so that the plate does not touch the teeth.

DR. W. C. COLLINS, of College Hill, was elected to membership.
Adjourned.

COMMENCEMENT OF THE DENTAL DEPARTMENT OF THE UNIVERSITY OF MARYLAND.

THE second annual commencement of the Dental Depart-

ment, in connection with the seventy-seventh annual session commencement of the Medical Department of the University, was held March 14th, 1884, at the Academy of Music, Baltimore, in the presence of a large audience. The exercises were opened with prayer by the Rev. Robt. H. Paine, of Mt. Calvary Church. After the reading of the mandamus, the names of the dental graduates, thirty-six in number, were announced by Prof. F. J. S. Gorgas, Dean of the Dental Department. The degree of "Doctor of Dental Surgery" was then conferred upon the following gentlemen by Hon. S. Yeackle Wallis, L.L.D., Provost of the University :

Theodore W. Albright, New York ; James B. Bigham, South Carolina ; Charles B. Blubaugh, M. D., W. Virginia ; Wilbur C. Bressler, Pennsylvania ; Henry H. Boswell, Maryland ; John H. Brown, Ohio ; George Buttler, Jr., New Jersey ; John M. Comegys, Tennessee ; George V. Copp, Virginia ; Almond J. Cutting, Massachusetts ; Isaac H. Davis, Maryland ; Watson E. Dorchester, New York ; Richard D. Evans, S. Wales, G. B. ; Claus Henry Filter, Germany ; Nathan E. Foote, New York ; Frank C. Gallup, Connecticut ; James Edwin Harris, Maryland ; S. Dwight Hodge, Vermont ; R. Dallas Kibler, Virginia ; Wiley S. Killingsworth, South Carolina ; Clark J. Ladson, District of Columbia ; Clarence E. Lemley, Virginia ; William Edward Lewis, Florida ; Job B. Mallott, Pennsylvania ; Charles H. McDowell, North Carolina ; Semoney J. Minghini, West Virginia ; S. Latimer Phillips, Virginia ; George Edward, Purnell, Maryland ; Nelson T. Shields, A. La Fayette Stratford, North Carolina ; Reading B. Swindell, North Carolina ; John E. Taggart, Vermont ; Robert R. Vaughan, Missouri ; Richard van der Hoppe, Austria ; Joseph T. Wayman, Virginia ; Elmer J. Wisherd, Maryland.

The "University Pledge," relating to Empiricism, was assented to by every graduate. The following prizes were awarded by the Provost of the University :

The large and elegant "University Gold Medal" to Nelson T. Shields of Texas, for the highest number of votes at the final examinations. Honorable Mention—Almond J. Cutting of Massachusetts. The S. S. White prize—"set of Varney's pluggers"—to S. Dwight Hodge, of Vermont, for the best two fillings, one of cohesive and one of non-cohesive gold. The S. S. White prize—"dental engine"—to Geo. E. Purnell, of Maryland, for the best artificial denture on metal. Honorable mention, Nelson T. Shields,

of Texas. The Snowden and Cowman prize—"set of Harris' forceps"—to John E. Taggart, of Vermont, for the second best artificial denture on metal. Honorable mention, Wiley S. Killingsworth, of South Carolina. The Gorgas prize—"gold medal"—to Jas. Edwin Harris, of Maryland, for best single cohesive gold filling. Honorable mention, Robert R. Vaughan, of Missouri. The F. L. Harris prize—"gold medal"—to A. La F. Stratford, of North Carolina, for best single non-cohesive gold filling. Honorable mention; first, Charles H. McDowell, of North Carolina; second, Jas. B. Bigham, of South Carolina. The B. H. Catching prize—"Southern Dental Journal for one year"—to Chas. J. Ladson, of District of Columbia, for best combination artificial denture. The D. Genese prize—"dental lathe, etc."—to Theodore W. Albright, of New York, for best continuous gum artificial denture. The B. M. Wilkerson prize—"Taft's Operative Dentistry"—to Watson E. Dorchester, of New York, for best specimen tooth filling. The D. Genese prize—"instrument stand, etc."—to Chas. J. Ladson, of District of Columbia, for best celluloid artificial denture.

The valedictory address was then delivered by Hon. J. Randolph Tucker, member of Congress. It was remarkably strong, and contained much solid and good advice to the graduates. He spoke for nearly an hour, and held the attention of his audience the entire time. During his remarks he said that the ambition of the young doctor must not be to rise to the highest round of the ladder only to make money, but to wear these honors well, and be honorable in wearing them. The way to secure this was only by following the maxim: "Nothing to be won in this world—except by hard work." He advised the graduates to keep themselves in a school of self-training, and to train themselves in the great mysteries of their profession. Do not go out of you profession, and whatever you do, eschew politics. There are now too many political doctors. Another point is the concentration of effort and study on your one profession. This does not lead you to shun all other pleasures, but everything else must be auxiliary to the one great object most admissible.

The exercises closed with the benediction.

The number of matriculates for the session was eighty-six, all of whom were purely dental students, and whose names and addresses will appear in the annual catalogue.

The University Alumni banquet took place on the evening of Commencement day, at the Eutaw House, at which there was a large attendance, including both medical and dental graduates, many of the prominent physicians and dentists of the city, Maryland and adjoining States, and also the faculties of the medical, law and dental departments of the University.

The following gentlemen acted as committees in awarding the prizes (except the University prize) at the "prize contest" of the Graduating Class of 1884, which took place in the Dental Infirmary, March 11th, 1884, and occupied the entire day: Drs. D. McFarlan, W. W. Evans, W. S. Harlan and E. B. Bliss, of Washington, D. C.; G. H. Chewning, R. S. Switzer and E. T. Wayman, of Virginia; B. M. Wilkerson, W. A. Mills and A. C. McCurdy, of Maryland, who expressed their admiration in the highest terms concerning the proficiency displayed by all, without a single exception, of the competing students, and congratulated the Faculty of the Dental Department upon the skill and ability of the Graduating Class of 1884.

THE following paper explains itself. It was received too late for our April number. If the profession can furnish the energy and perseverance necessary to carry the measure to its fulness great good may be done. If not it will be still-born.—ED. JOURNAL.

To the President and Members of the State Dental Associations:

GENTLEMEN—The foremost men of our profession admit the fact that the name of American Dentistry has not that world-wide recognition which its honor demands, and its history would warrant. In our opinion, this is an opportune time for a general movement to place it upon a basis commensurate with its dignity, and we venture to submit the outline of a plan for the purpose, which we think feasible, and which we hope will meet with your sanction and furtherance.

As a nation claiming to lead the world in the science and art of Dentistry, we should have one great representative body of the profession to speak forth with authority its aims, duties and attainments.

Let us, therefore, organize a National Dental Association of the United States, composed of delegates elected by the various State organizations, an equal number from each State, to meet

annually, always at Washington, D. C. Thus, we would give to Delaware the same voice as to New York. In order to always secure a full meeting, we would suggest six as the number of delegates from each State; a like number of alternates having been elected. Let the National Association elect a Board of Regents, one from each State, who shall control its meetings, setting the time, etc.

As important adjuncts to this Association, we believe it would be found expedient to establish an extensive library, to contain dental works and publications, standard and periodical, foreign and native; and the founding of a national museum, to illustrate the past, present and future of dentistry.

The wonderful benefit to the profession and humanity in general to be derived from these is certainly manifest to every intelligent dentist.

We are sure that room can be obtained in the Smithsonian Institute for the museum, and in the library of the Surgeon General's office for the library. We are equally sure that Congress will grant an appropriation for both purposes, as is done for the medical profession.

Mature deliberation at the meeting for organizing will suggest the details of the scheme, which we have not thought it necessary to go into here.

In conclusion, we would respectfully urge that you elect, at your present meeting, delegates, with alternates, to meet for the purpose of organization; at the time agreed upon by the chairmen of the different State delegations.

Do this in anticipation of like action upon the part of other State societies; then forward to Dr. B. H. Catching, Atlanta, Ga., the name and address of your chairman, and he will act as medium of communication between the different delegations, informing each of the action of the other, thereby bringing about unity of action.

Yours respectfully,

FRANK ABBOTT, New York City.
J. E. CRAVENS, Indianapolis, Ind.
C. T. STOCKWELL, Springfield, Mass.
F. SEARLE, Springfield, Mass.
W. C. WARDLAW, Augusta, Ga.
B. H. CATCHING, Atlanta, Ga.

"Be sure you are off with the old love
Before you are on with the new."

—ED. JOURNAL.

THE TWENTIETH ANNUAL MEETING

OF the Illinois State Dental Society, will be held in the Senate Chamber, Springfield, commencing Tuesday, May 13th, 1884, and continuing four days.

TO THE PROFESSION.

In issuing the announcement of the Twentieth Annual Meeting of the Illinois State Dental Society, we would urge upon the members to be present at the beginning. Come prepared to remain during the entire session. Do not come fatigued and worn out from having crowded two weeks' work into one before leaving home, as is too often the case, but study the subjects and be prepared to take an active part in the proceedings, thus making this one of the best meetings we have ever held. We also desire to extend a cordial invitation to all dentists in this and adjoining States to meet with us.

A glance over the programme will convince you that you cannot afford to be absent. In addition to the list, Dr. Patrick will give a short paper entitled, "A stray leaf from the first chapter on Dental Education." Dr. Sudduth's paper will be finely illustrated by a first-class stereopticon, with calcium lights, under the personal direction of Prof. Seymore, of Bloomington. Dr. Taggart's paper will be illustrated by experiments with chemicals.

SUBJECTS AND ESSAYISTS.

I. Exposed Dental Pulps and their Treatment. S. F. Duncan, Wilmington. Discussion opened by J. N. Crouse, Chicago.

II. Reflex Pain. K. C. Moody, Mendota. Discussion opened by T. L. Gilmer, Quincy.

III. Origin of the Defective Tooth Structure, Known as Pitted, Furrowed, or Cribriform Enamel. W. H. Eames, St. Louis, Mo. Discussion opened by L. C. Ingersoll, Keokuk.

IV. Inflammation. Homer Judd, Alton. Discussion opened by W. B. Woodward, Peoria.

V. Chemistry. Wm. H. Taggart, Freeport. Discussion opened by E. S. Talbot, Chicago.

VI. Dental Education, past, present and future. A. H. Fuller, St. Louis, Mo. Discussion opened by Geo. H. Cushing, Chicago.

VII. Dental-Embryonal Histology. Will X. Sudduth, Bloomington. Discussion opened by A. W. Harlan, Chicago.

VIII. Some applications of Electrolysis in Dentistry. W. B. Ames, Chicago. Discussion opened by T. W. Brophy, Chicago.

IX. Irregularities in Human Teeth—Treatment and Cause. J. J. R. Patrick, Belleville. Discussion opened by W. N. Morrison, St. Louis.

X. Life as a Force. G. V. Black, Jacksonville. Discussion opened by J. Taft, Cincinnati.

XI. Illinois State Dental Society—What has it Accomplished? C. R. E. Koch, Chicago. Discussion opened by C. A. Kitchen, Rockford.

THE SOUTHERN DENTAL ASSOCIATION

WILL hold its 16th annual session in the city of Lexington, Ky., commencing the 1st Tuesday in May. Ample arrangements have been made by the Executive Committee, with the railroads and Hotels, (with headquarters at the Phoenix Hotel), for reduced rates, etc. This meeting promises to be one of unusual interest. The location the most lovely in the grand old state of Kentucky.

Our professional brethren, who are interested in the advancement of dental science are most cordially invited.

H. J. McKELLOPS, St. Louis, *President*.

W. H. HOFFMAN, *Rec. Sec'y*.

The above was delayed in the mail till quite too late for our April number.—Ed.

NORTHERN OHIO DENTAL ASSOCIATION.

THE twenty-fifth annual meeting will be held in Cleveland, Tuesday and Wednesday, May 13 and 14, 1884, commencing at 10 A. M., Tuesday. Meeting to be held at Board of Education rooms, Public Library. A cordial invitation is extended to all the profession.

H. F. HARVEY, *Cor. Sec'y*.

GALE FRENCH, *Pres't*.

ORDER OF BUSINESS.

1. Reading of Minutes.
2. Reports of Officers and Committees.
3. Reading of Essays.
4. Discussions.

Election of Officers, Wednesday, 10 A. M.

SUBJECTS FOR DISCUSSION.

1. The Causes of Failure in Dental Operations.
 2. Materials for Filling Teeth, their relative value, and how to use them.
 3. Prosthetic Dentistry, including Artificial crowns.
 3. Subjects proposed by Members, and quiz.
- It is hoped there will be a good attendance.

 EXPLAINS ITSELF.

70 Dearborn St., CHICAGO, March 15, 1884.

DEAR DR.:—In order that Section VI of the American Dental Association may present properly digested articles, at the next meeting, on the subjects of Pathology, Therapeutics, and Materia Medica, you are requested to notify me at your earliest convenience, whether you will be able to contribute a paper, or communicate a new fact, or present a pathological specimen, microscopical or otherwise. A little effort exerted by the members of the section will enable us to make a creditable showing at the meeting, to be held in Saratoga next August. Yours truly,

A. W. HARLAN, M. D., D.D.S.,
Chairman Section VI.

 Our Aftermath.

TREATMENT OF TOOTHACHE by Subcutaneous Injection of Pilocarpine.—In the *Vrachele Vendom*, 1882, No. 543, p. 3551, Er. P. M. Popoff emphatically recommends hypodermic injection of a solution of pilocarpine (half grain to two scruples of water) as a most reliable remedy for tooth-ache. He injected ten minims into the temporal region of the diseased side, and saw almost in-

stantaneous relief, which was complete and permanent. — *London Medical Record and Cincinnati Lancet and Observer.*

THE *Medical Student* has this to say: *The Practical Aspect of the Bacillus Tuberculosis.*—The application of the new doctrines to the prevention and cure of phthisis, is admitted to have been thus far without practical results. The preventive measures now available are those available before the bacillus was known; and no measures have been discovered which can destroy the parasite without destroying the patient.

TO PREVENT BALDNESS.—Prof. Grass suggests the following:

R	Tinct. Cantharidis,	.	.	.	.	.	.	3	iss.
	" Capsici,	.	.	.	.	.	.	gtt	xx.
	Glycerini,	.	.	.	.	.	.	3	ss.
	Aquæ Calogniensisq.s.,	.	.	.	.	.	ad	3	vj.
S.	"Hair Tonic,"	.	.	.	.	.	.		m.

—*College and Clinical Record.*

A PRONUNCIATION.—Henry Erskine, pleading before Lord Thurlow, had to speak of a certain curator, and gave the Scotch pronunciation of the word, with the accent on the first syllable. "Pardon me, sir," said Thurlow; "we pronounce the word cu-RA-tor in England, following the analogy of the Latin language in which the penultimate syllable is long." "I thank you, my Lord," replied Erskine, and I bow at once to the authority of a Se-na-tor so learned and an o-ra-tor so eloquent as your Lordship."—*London Society.*

The above was surpassed by the late Hon. Samuel Galloway, M. C., from Ohio. He delivered an address to a literary society in Miami University, and pronounced the word wound, sounding ou as in thou. When taken to task for it he promised to do better, "But," added he, "you may search the world roond, going over the groond with the skill of a hoond, and I'll be boond no other word will be foond to have a soond that will jingle with woond."

ANOTHER SURGICAL FOLLY.—The local use of nitrate of silver for the intended destruction of a virus, or for the disintegration and removal of fungous or malignant tissue, is founded on error. Nitrate of silver, though popularly called "caustic," is not a caustic; it is a mere irritant, scarcely more active than tincture of iodine. The caustics to be used by surgeons for the purposes mentioned are chromic, nitric, carbolic and acetic acids, potassa and similar active drugs, and the hot iron. Under many circumstances the best *caustic* is a sharp scalpel.—*Polyclinic.*

MR. DALBY, the English artist, finds that congenital deafness is commoner among the offspring of cousins who marry than among the offspring of unrelated persons of whom one or both are congenitally deaf.

PAPER TOWELS FOR SURGICAL PURPOSES.—In the surgical dispensary of the Philadelphia Polyclinic, Dr. Roberts has been using, with much satisfaction, Japanese paper handkerchiefs for drying wounds. Sponges are so seldom and with such difficulty perfectly cleansed after being once used, that they are never employed in the clinic. Ordinary cotton or linen towels are much preferable to sponges, which, if dirty, are liable to introduce septic material into wounds. The paper towels, however, answer the same purpose as cotton ones, and are so cheap that they can be thrown away after being used. They cost from \$6 to \$7.50 a thousand. The cost of washing a large number of ordinary towels is thus avoided. The paper towels are scarcely suitable for drying hands, after washing, unless several towels are used at once, because a large amount of moisture on the hands soon saturates a single towel. For removing blood from wounds, a paper towel is crumpled up into a sort of ball, and then used as a sponge. Such balls absorb blood rapidly. The crude ornamental pictures, in color, on the towels, are of no advantage, nor are they, as far as known, any objection.—*Med. and Surg. Reporter.*

SUCCESS IN LIFE.—It is the ambition of every person to make a success in life, but there are many different opinions as to what constitutes success. Many men die leaving the world with the impression that they succeeded wonderfully, when in reality their lives have been most miserable failures. It is not always an evidence of success because a man accumulates a fortune and dies rich, nor is it evidence of failure because another man lives and dies poor. The poor man may have done more good in the world and enjoyed himself better than the rich man. There is no more lamentable illustration of a life failure than the career of the man who devotes all his energies to making money, who instead of enjoying the fruits of his labors, continually struggles for a "little more," thereby ruining both his health and his capacity for enjoyment, who lives an anxious fretful life and dies a premature death having accumulated a fortune without ever enjoying it. It is not so much a person's ability to turn his occupation to account in making large sums of money that constitutes success as his faculty for getting a large amount of enjoyment and doing a great deal of good with a moderate income.

OINTMENT OF GLYCERINE.—An ointment which protects the skin and keeps it soft is made with 225 parts of best glycerine and 5 parts of powdered tragacanth, to which is added 5 parts of borax and 25 parts of rose water. The dry powdered tragacanth, free from lumps, should be triturated with 50 parts of the glycerine, after which the remainder of the glycerine may be added and heat applied. Iodoform can be worked into it directly without anything else being added, and thus forms a mass that may be rolled out into sticks, as slim as a knitting needle. The same ointment but a little thinner has been used with success in dentistry for applying to the exposed pulp. Its preservative, antiseptic, and non-drying properties cause it to be held in high esteem for this purpose.—J. MULFINGER, in the *Pharm. Centrathalle.*

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"A word fitly spoken is like apples of gold."—SOLOMON.

OUR NOMENCLATURE.

BY L. C. INGERSOLL, DEAN.

[Extracts from an Introductory Lecture before the Dental Department of the State University of Iowa.]

* * * * SCIENCE comes to you in language. Language is the vehicle of thought and instruction. *Words* hold the facts which are communicable to the ear and thus to the mind. First, then, you must know *words* if you would understand any subject.

The language of science is very generally technical; that is, words are used that have a special significance—words adapted, at once to conciseness of expression and fullness of meaning. It is often found that a single technical word compasses an idea which would require several common words to express, or which any circumlocution of common words would fail adequately to express.

Without a knowledge of the words employed to communicate science, a knowledge of science cannot be gained. This fact points to the books first needed in the study of science—*diction-*

aries. Every student of dentistry needs a good English dictionary, together with dental and medical dictionaries. *A word fully understood is an idea fixed in the mind.*

I would have you, therefore, understand the meaning of words—all the technical words of dental science, as well as all the common words of our best authors. * * * * *

* * * * * It is unfortunate that the nomenclature of dentistry did not receive early attention. Yet it is probably as pure as that of other sciences. In the early development of a science, words, both simple and compound, are used to express the ideas, facts and principles evolved by research and discovery, which after-investigations so greatly modify that the terms need modifying also, or dropping entirely, while other words are substituted. There are many words now in common use in the vocabulary of science, which are so far drawn from their original significations and use, as to belie their own meaning. Take, for example, the word *doctor*. It is derived from the latin word *docere*, to teach. It is now applied to all classes and grades of men and women who profess to understand and to heal diseases of men or animals.

The term was originally applied to a class of men who, by law, held the sources of knowledge, and carefully concealed their knowledge from the mass of the people. It was applied as a distinguishing title to the theologians, and to the priesthood of the times, who, pretending to be taught by the Gods as their special favorites, communicated to their fellow men only such knowledge and ideas as would support themselves in their arrogant assumptions. They came to men with divinations concerning the future; they marked out the history of individuals, and the progress of future events by astrology; they became the healers of diseases by incantations and priestly mummeries; they were called *doctors*, not because they were the healers of diseases, but because they were the only learned men of that age, and because they alone were able to teach mankind—the term *doctor* means simply *teacher*.

Among this class of men were found the students of divinity, civil law and science. Those learned in any department of knowledge were called *doctors* because of their qualification to teach and impart a knowledge of divine and human affairs to mankind. Hence we have in our day Doctors of Divinity, Doc-

tors of Law, Doctors of Medicine, Doctors of Philosophy, etc. The titles D. D., L. L. D. and Ph. D. are the only titles that retain the original signification of the term *doctor*. The titles, M. D., D. D. S. and M. D. S. have lost all trace of the primitive signification of the title *doctor*.

It is not my purpose in this lecture to become a professor of terminology, nor to overwhelm you with a fog of technical terms. But appreciating, as I do, the importance of using words according to their legitimate significations, as the most concise mode of teaching science, I shall aim to acquaint you fully with the meanings of the technical terms used in dentistry, limiting the vocabulary of the science to the simplest and the fewest number consistent with the fullness and clearness of expression as regards the subject in hand.

The most prominent word in a science is that which names it. On our introduction to a person we desire first of all to know his name. With much stronger desire, on our introduction to any science do we wish to know its name; because in the name we have a clue to what is contained in the science.

Unfortunately, however, the name of the science which is now about to engage your study does not indicate truthfully its present character. Its name was chosen for it when it was an infant, and its character undeveloped. Being an off-shoot of surgery, it was early called dental surgery. As the practice increased it became more and more separate from the general practice of surgery, and took for its name simply dentistry—preserving the terminal letters, “ry,” of the paternal name from which it sprang.

The term dentistry has not, in its true significance, the remotest allusion to the chief element of modern dentistry, viz: its scientific character. The term signifies simply an article of manufacture which is the product of the dentist, as millinery means the product of the milliner, and jewelry the product of the jeweler, and hosiery the product of the knitter and the stocking weaver, and carpentry the product of the carpenter. In earlier days when the dentist engaged himself in almost nothing else than the manufacture of artificial teeth, the product of the dentist was very fittingly called dentistry. But considering its modern scientific development, it should be known by a new name.

It has been customary in modern days, to terminate the

names of such branches of knowledge as have been developed into sciences by the syllables *ol-o-gy*, taken from the Greek word *logos*, which means a dissertation or discourse, such as is common with instructors. Hence we have the names *theology*, geology, pathology, dermatology, and many more name of sciences with like termination.

This terminology has become so general that we may say that it is the chosen nomenclature of science. Hence, the science relating to the teeth ought to be found in harmony with the nomenclature of science generally, and should be named *dentology*.

Surgery has met with a strange metamorphosis regarding its name. In its primitive state it was but a manual art applied to the relief of external forms of disease, and was called *chirurgery*, a name derived from two greek words, *cheir*, the hand, and *ergein*, to work; and it implied simply hand work for the relief of the unfortunate. That work consisted in supplying false limbs, false hair, crutches, bands and splints for broken limbs.

Surgery, like dentistry, was at first performed by ignorant barbers, and other illiterate shop men, who, not knowing the significance of the words they used, fell into the habit of clipping and half uttering them. They thus contracted the word *chirurgery* into *surgery*. So it appears that the name surgery is a mere unmeaning vulgarism.

Inasmuch as surgery has advanced from a mere handicraft to a science, it should have dropped its present name, and have adopted one more significant of its true character as belonging to the family of the sciences, among which, in modern times, it has gained a conspicuous place.

As now practiced, surgery covers the whole range of medical science, as well as the manual operations which have made it a distinctive science. With some sense of propriety, therefore, it might be called *medico-chirology*, which would signify a practice of the healing art by the use of both medicines and manual operations.

The latin word *dens*, meaning *tooth*, has been the most fruitful root from which the technical words of our science have sprung. From it we have the words dentist, dentistry, dentology, dentine, dentition, dentigerous, denture, dentifrice, and many others.

There is a disposition, on the part of some, to burden the sci-

ence with words of the same meaning derived from the greek. Thus from the greek word *odos*, or more correctly, *hodos*, using the english *h* for the aspirate sound of the greek—a word which signifies the same as *dens*, some use the word *odontal* for dental, *odontology* for dentology, odontal membrane for dental membrane. Though this departure from the harmony and simplicity of scientific terms springs from some high source, it is, I think, to be deprecated. While the romantic desire may be indulged in regarding the naming of a society odontological, our text-books should not be cumbered with a multiplicity of terms without additional meanings.

The word *erupt*, early introduced into dental science, is a disgusting word, suggestive of only boils, eruptive fevers, and small-pox scabs. Is the emergence of the teeth from the gum anything like an eruption? One might, with as much propriety, speak of the eruption of a field of corn. Would you say, in the spring time, that the grass is erupting? If the emergence of the teeth is an eruption, tooth crowns should be called eruptive matter. The word must have originated with Hippocrates, the “father of medicine,” who lived 460 years B. C., and who called the teeth, “A glutinous increment from the bones of the head and jaws.”

ADAPTING ARTIFICIAL CROWNS TO ROOTS OF TEETH.

BY DR. GEO. W. SMITH.

[Read before the Mississippi Valley Dental Society.]

THE practice of adapting artificial crowns to the roots of decayed teeth is the first method in which artificial work was introduced to the dental profession. And to-day there is no phase of the mechanical department which promises greater success than the one we are about to discuss.

When we take into account the wideness of this subject, what it involves, and the possibilities that lie just beyond, I will scarcely be able to give you an outline in a paper like this. This method, I believe, if once brought to perfection, will give better satisfaction to the patient than any mechanical work yet discovered.

If we retrospect and acquaint ourselves with the early methods of pivoting teeth, we find that two kinds of pivots were employed, to-wit: wood and gold.

With some little alteration, the latter serves us at the present time, and doubtless will continue to do so; for we have no promise of good results when this gold, or platinum wire, is not employed, as it not only serves to hold the crown in place, but also adds strength and stability, a point of great importance.

It is not our purpose to under-rate other modes of the mechanical art when we say that the signs of the times indicate that the profession is looking around for methods to replace lost dentures, other than that of inserting plates, or sacrificing part of the tissues and destroying contour without the least hope of replacing it except by artificial means.

The fact is well known to every dentist that, with many persons, the thought of wearing an artificial plate is absolutely repulsive. This class of patients would be willing to pay almost any fee if their teeth could be restored without a plate or the removal of the wrecks remaining in the oral cavity.

The failure in treating and filling successfully the natural root was the greatest obstacle to be overcome in the adoption of a method which avoided plate work. But the rapid strides made by our progressive and ever advancing profession have at last overcome these obstacles, and by the improvements made we may now restore broken down crowns by setting gold bands, and gold and porcelain crowns on roots almost entirely destroyed by caries. Roots that are looked upon as unwelcome guests in the mouth, and that once would have been considered useless, may now be made not only to serve in keeping the muscles of the face in place, but also as good and efficient masticators.

In the erection of a grand and stately edifice, the first and most important matter to engage the attention of the architect is the foundation upon which the superstructure is to be built. So in mounting these porcelain crowns, the root, our foundation, must first be examined to see whether or not it is sound and healthy. It should be treated until it is free from all obnoxious and fermenting gases.

The pulp cavity may then be enlarged with suitable instruments, to within one-third of the apex, to receive the pivot. It has been my practice in the crown which I have originated, to cut

the root short to the gum, if not slightly under the free margin on the labial surface, while on the palatine I leave it projecting slightly, if possible. I then fill the upper third of the root with fossiline and surgeon's cotton. I take a small portion of the fibre, tease it on glass, mix it with the cement, and with small nerve instruments, I carry it to the apical foramen, completely closing it. The cotton serves to carry the cement to the desired point, and when packed in the root, will set perfectly hard, and completely exclude any egress from the canal through the apex, which is the ultimatum in all root filling.

I then take a cast from the mouth, followed by articulation, after which I select a plain plate tooth, with shade to suit those with which it is to be associated, and grind to suit the prepared root. I now select the pivot of gold or platinum, the end of which I flatten, punch holes to suit the pins in the artificial crown, and press the end on as backing. I invest this, and solder the wire to the pins. If the wire is not quite shaped to suit the hole in the root it can easily be adjusted.

Place the pivot and crown in position, and regulate the contour and articulation. Now take sheet tin, press around the palatine surface, while the tooth is in position; let the tin cover the root, also the palatine surface of the tooth. This will give the outline or pattern, from which the gold band may be cut and shaped to the root and crown; secure the band with "wax resin" and remove altogether. Invest and solder. When polished, the root, together with the crown, should be sponged off with alcohol, the mouth kept dry with bibulous paper or a napkin, until the cement is prepared for the pivot.

Mix enough of the fossiline to fill the root, which should be put on the pivot and band, and then carry them up in position and hold firmly until it hardens. This crown is not only artistic, but serviceable; and when set, gives entire satisfaction, of which many testimonials can be had in our city at the present time.

Within a few years past, we have had a crown presented to the profession by Dr. Richmond, made of gold. This crown has found favor with many operators as a substitute for broken down molars. It meets a demand that cannot be supplied successfully, as yet, by any porcelain work for molar teeth. And I may say that many teeth have been made useful by this method, that otherwise would have been lost.

The original method of setting this crown, I believe, was to dress the root, or that portion of the tooth remaining, so the crown would fit tightly when pressed to the margin of the gum. To do this it was necessary to dress the stump on which the crown was to rest, then take a cast, followed by articulation, after which we press tin foil around the stump to get the circumference of the remaining tooth, from which to make the band. The gold band may be made to fit the stump accurately by passing wire around the band, and passing band and wire over the root on which the crown will finally rest, and with the pliers, twist the wire till it fits tightly; then remove and solder, and again return to the root. Now build up with wax, and have the patient close the mouth, which will give the space to be filled with gold.

The easiest and best method in making the top is to melt the gold down on thin platinum, and after soldering to the band, it may be shaped with a file to suit the articulation. An opening should be left in the top for the escape of the surplus cement, which may finally be filled with gold foil.

The dental profession can boast of many different artificial taps and varieties of porcelain crowns, all artistic, and many that may be relied on for utility and service. And we are under lasting obligations to those who are interesting themselves so energetically in behalf of the profession. But the crown that should be adopted, is the one that embraces the combined elements of *strength* and *beauty*—strength to resist the pressure to which it is usually exposed, and beauty, to make it take as far as possible, the place of the natural teeth.

I have now given you the results of my experience, and the method which has given me the greatest satisfaction; so that it is in order for you to relate your experiences, and enter into the discussion of their merits.

Boyle, the eminent English chemist, said that if every artist would but discover what new observations occurred to *him* in the exercise of his trade, philosophy would thence gain innumerable improvements. It is just so with our profession. All knowledge began from experience, therefore all new experience is the beginning of new knowledge.

Each can accomplish much for himself by energy, hard work, and close application to his profession, but not all. So closely are we related to each other, and so different are our professional

experiences, that the greatest results are attained only by our meeting together, comparing notes and experiences, and discussing, thoroughly, the subjects that are of vital importance to our profession. Thus will the great excellencies of each one, in any particular line, be made the excellencies of all, which is a duty we owe, not only to ourselves, but to the public, our patients. In this light there is no policy so poor as selfishness. He who seeks exclusively his own interests will never find them, for they lie not in the path he is pursuing.

When the interests of each, and the interests of all of us, are no more separated in thought and deed than they are in reality, then will the truest, surest, most permanent progress be made in our most worthy profession.

ANSWER TO DR. FRAENKEL'S PAPER IN APRIL NUMBER.

BY J. H. MARTINDALE, D.D.S., MINNEAPOLIS.

HAVING just read, in your JOURNAL for April, a paper on Dental Education, by a gentleman, who, in the beginning of his paper, announces that he is a young man, who professes it to be the duty of all earnest, honest young men to interest themselves in those things that appertain to the weal of their profession, as a young man, I crave the liberty of your pages to make answer. I take exception, in part, to the argument of my professional friend. He dilates upon the fact, that in almost all papers he reads, there is the stereotyped demand: "All Dentists should be M. D.'s"; and he then construes an M. D. to be "a man who, after three years of theoretical study in a medical college, receives a parchment that awards him the title of M. D." "This title indicates," he farther adds, "that the possessor has the theoretical knowledge upon which the practice of medicine and surgery, are based." It does not indicate at all that he is a good physician or surgeon. Granted! But does that prove anything save the incapacity of certain men who acquire the degree, to assimilate to their profit, the pabulum so amply supplied at the good medical colleges, and the impossibility of medical schools making "bricks without straw," of the ignorant or empirical men who apply for

their degree? Medical, Dental and other human institutions, are far from perfect; but because the ladder is not to our liking, shall we refuse to scale the wall, or try to do it some other way?

And because, once in awhile, a weak, incapable man, who cannot succeed in the general practice of medicine, or who, restive under the incubus of a beginning practitioner's life, desires to acquire more speedy profits, and therefore, assumes the role of Dentist, making often a very sorry one, and claiming, often-times, prestige in consequence of his medical degree; does that, again I say, prove anything save the weakness of human nature, coupled with a correct sentiment that is inherent in every thinking Dentist's mind, (entertained even by many of the intelligent "laity"), that our *practice is* a specialty of the remedial art, whose base is founded upon the rock of medicine, surgery, and the correlated sciences? Graduation is the approved good way for entering into general, or any special line of medical practice. As the faculties of the respective colleges in good standing, are able to protect themselves against imposture, in the shape of wrongly minded, or ignorant aspirants for their degree, they will doubtless do so. As it is, they are the custodians of what all men prize, (when it comes from a reputable institution), a medical degree.

And now, having argued in favor of a medical degree being a requisite to a medical practitioner, let us enquire as to whether Dentistry *is really* a specialty of medical and surgical practice. We are continually called upon to work on vascular and nervous structures—structures capable of showing marked re-actions to our treatment in various ways. We are often dependent upon the recuperative power and "tone" of the system generally, to second us in our endeavors to subdue the ravages that lie more directly in our province, in the lesions and diseases of the teeth, and oral cavity. When we consider how frequently we have to enlist the therapy of medicine, to assist us in prescribing medicines, diet and hygiene, that may assist us in restoring a deficiency as manifested in the teeth, it may be, of the calcific elements, by the administration, through the alimentary system, of lime phosphates in the food, or whatever other direct or accessory medical treatment may be necessary. By directing mothers in gestation, who have had rachitic children, means whereby malnutrition of the *teeth*, in common with the bones, may be averted. The use of salines, cathartics, depletants, etc., so imperatively called for

to second our efforts in combating the various inflammations, pulpitis, peridontitis, abscess, etc., so common in a dental practice. The systemic, as well as the local treatment for those to whom, through a hemorrhagic diathesis, even a slight surgical operation is attended by danger. And last, but by no means least, in order to understand the pains, which reflexly, through the pneumogastric, trifacial, and other nerves, are so likely to be reflected from an entirely different part, to the region directly under our care. This requires that we should at least have such a knowledge of the reflex action of nerves, as to be, perhaps, able to assist our patients, to ascribe their neuralgia, or dental pain, to its proper source, and suggest the proper remedy, or a suitable specialist, for their case, instead of ignorantly, and persistently fighting fire with fire. To allude to the writer's hypothetical question, as regards a Dentist being the proper one to conduct the delivery of a child, whose birth might be prematurely induced by the extraction of a tooth, we will say that the case (that of premature delivery as the direct result of an extraction), seems to us *very* hypothetical.

Nor do we sanction the Dentist, appending to the functions of his calling, that of the accoucheur, by any means; still it is advisable that he should understand some of the salient points of obstetrics and gynecology. We have all, often encountered the peculiar, and unrestrainable dental neuralgia during gestation, and I have even observed a case of *continued* dental neuralgia in a patient who had sustained a rupture of the cervix during delivery, and due to it, I believe. Although we *can* blunder along, filling teeth with due attention to mechanical and artistic detail, and when we encounter difficulties, and complications too obscure for us to comprehend, we can dispatch the case, the patient, and all thought of the matter, by saying, "it was due to debility and want of tone in the system;" "circumstances over which we had no control;" anything but candidly recognize that the relations between the mouth and teeth, and the rest of the "human frame divine," are so complicated and indissoluble, as to require a thoroughly scientific and medically quickened training for their comprehension, at least, to the comparatively meagre extent, that even the *best* medical colleges can teach us.

To treat inflammation, for instance, as we find it in the mouth, should we not have something of a comprehension of inflammation in general? Dr. Gross in his surgery says, "The

smallest pimple on the nose, is in point of fact, as much an inflammation, as an erysipelas that covers the face and head.

An ulcer of one of the mucous follicles of the mouth does not differ in principle from an ulceration of one of the glands of Peyer, which are the seat of so much disease and danger in typhoid fever.

It is true that some will, by themselves, unassisted by professors, demonstrators, laboratories, and class esprit, study the subject as exhibited in the works of the various authors; and much should we respect the efforts of men who, so poorly provided with the elements of happy chance and circumstance, can dare and do so much; but they are trying to steer their ship without sextant and compass; and they are liable to drift off into many currents of doubt, and confusion.

Can an earnest, conscientious student of the sciences underlying the practice of our specialty, afford to seek his knowledge from any source beside the fountain heads of medical learning? Do we gather "figs of thistles, or grapes of thorns?" If a thing is worth learning at all, that constitutes our capital—our professional stock-in-trade, is it not worth our learning thoroughly, and from the best sources our means and efforts can command? And this brings me to the last point of consideration. My professional friend has suggested that the dental schools so arrange their curriculum that they can teach all the branches of medicine and surgery necessary for a Dentist, as well as the medical schools can do it. Now the dental schools, many of them, are doing nobly, the best they can; and collateral with a medical education, a man should provide himself with the practical knowledge of his craft that he can alone acquire at a dental college, a dental infirmary, or a long preceptorship with an able dentist. But *can* he, at the present age in dental college education, acquire those features of a medical education previously alluded to, as well in a dental, as in a medical college?

Have they teachers who can teach them as well as a Gross, a Pancoast, a Loomis, a Flint, a Doremus?

Have they dissecting rooms, demonstrators, laboratories, clinical facilities that will assist them to study medicine in a dental, as in a medical college?

Nor is it just for us to look to some idealistic hereafter, when there may be colleges that teach, as Dr. Fraenkel says, "all of

medicine and surgery that is necessary for a dentist," and finish up by teaching him the manipulative exercise of his practice.

We must take things as they are. There are hundreds of young men honestly and earnestly minded to prepare themselves for the scientific and intelligent practice of dentistry; and, as a young man myself, I cannot *tacitly* admit, or pass unchallenged, Dr. Fraenkel's paper; and, in recapitulation, I will say, that I regard our vocation as unquestionably a specialty of medicine, a complete knowledge of which (under the present institutions) alone can be acquired at a medical college, supplemented by special training elsewhere.

CLASS VALEDICTORY.

BY W. K. SINTON, MEMBER OF THE CLASS.

[Dental Department State University of Iowa, 1884.]

Mr. President, Gentlemen, Regents and Faculty, Friends of the University and Classmates:

It is my privilege to say a few words to you, and especially to my classmates, before our final separation. I have to offer only a few thoughts suggested by the occasion. With us this is a time for rejoicing, for it indicates that we have attained the objects for which we came here, and we are about to return to our homes and offices, better prepared to prevent and relieve such suffering and deformity as come within the province of our specialty. Mingled with our rejoicings however, are feelings of regret, for there has been much of pleasure connected with our labors. It is a pleasure to receive instruction as we have received it, from men whose hearts are in their work, and who are unselfishly devoting time and money to the advancement of their chosen profession. They are all men of high attainments in their profession, of broad and liberal views, and an unselfish devotion to the cause of dental education. Our relations and associations with them have been mutually pleasant, and to us very profitable. Each one of the professors has the respect and friendship of the whole class. Therefore I say it is with regret that we sever our present connections with them, and I believe, as the years roll on,

we will appreciate more and more the benefits we have derived from their words of wisdom and experience.

I think I am safe in saying that we are all interested in that elevation and progress of the dental profession, which has taken place during the last twenty-five or thirty years, and which is sure to continue. We wish to help it on rather than retard it. Let us then consider our duties in this direction and the best means of accomplishing this end. As we review the history of the past we perceive that very few, if any, of the blessings attendant upon modern civilization can be ascribed to accident alone; but that all progress is the result of intelligent study, thought and labor. While here we have acquired habits of study and methods of investigation, which must not be relaxed in the future; for we have not learned all the science and art in dentistry during our college course, but we have simply laid the foundation on which to build, as long as we live. If we are faithful in this building, the superstructure will be acceptable to ourselves and to the world. As an incentive and aid in this direction, as well as to extend our own influence, it will be well to associate ourselves with our co-laborers in dental societies whenever opportunity permits.

The advantages to be derived from such associations, and from interchange of thought, cannot be over-estimated. It was through the influence of such societies that dental colleges were first established; and they gave to dental literature its inception and progress; and to-day the reports of the proceedings of societies form the most important part of the contents of our dental magazines. This suggests another important aid toward higher attainment. Ever since printing was invented, it has been the chief factor in the advancement of science. We shall be wise, then, in providing ourselves with the best dental and general science magazines and publications of the day. For, while we can meet but once or twice a year in the societies, through our periodicals we have constant communion with the best minds on all subjects pertaining to our specialty. We also owe it to our brother dentists to give them the benefit of our own thought and investigation, through the same medium, and, if I may judge from our college experience, those who follow out this suggestion will themselves be the greater gainers by it.

What is the most desirable education for the dentist, is a

question that is attracting attention at the present time; and it is important that our influence should be on the side of progress. The day when any ignoramus can set up as a full-fledged dentist, after spending a few months as an assistant in an office, is fast passing away. Already we have, in this State, a more stringent law regulating the practice of dentistry than that relating to the practice of medicine: and we expect that, as its importance becomes more generally appreciated, it will be made still more stringent. The person who wishes to become a dentist should first lay the foundation by taking at least a good high school course, and better still, if he will take the training of a scientific course in college; then let him go to a dental college at once. Professor H. A. Smith, of the Ohio Dental College, says "the worst students we receive are those from dental offices; the voluntary students who come without office preparation are the best." The experience of nearly all who are best able to judge on this question corroborates this opinion, that the college is the proper place to begin practical work, and that any special preliminary instruction should be confined to observation and reading, under the direction of some competent dentist.

In college, let the object of education be to make a thorough and competent dentist, not a physician. Not that I would discourage the study of anything pertaining to general medicine by dental students, or dentists; if they have the time and opportunity. On the contrary, it is a profession closely allied to dentistry, and we cannot know too much of its principles. There is, however, in its study, much that is not essential to the dental practice; and if the student begins with the idea that he must cover the whole field of medical science, he is sure to pass over some of the essentials too hurriedly. We admit, and consider this to be the therapeutical era of dentistry, compared to the strictly mechanical and surgical eras through which it has successively passed; and that the therapeutical effect of such local remedies are necessary to dental practice, should be thoroughly understood; but from its comprehensiveness and importance, dentistry must be a distinct and separate profession, and not a specialty of medicine, as medicine is understood, taught and practiced, to-day. If by medicine we were to include the whole science of anthropology, we would properly call dentistry one of its specialties.

The tendency of the age is toward concentration of the individual's energies; and he who would be successful in life, must be able to do one thing well, no matter how simple it may seem to be. A prominent writer has said, "the day of universal scholars is past, and whoever would know one thing well must have the courage to be ignorant of a thousand other things, however attractive."

When it becomes generally understood that the course I have hurriedly outlined must be followed, to become a successful dentist, the large number of incompetents who incumber our ranks will be greatly lessened, and the standard of dentistry consequently raised to a much higher plane.

Gentlemen of the Board of Regents and of the Faculty: As a member of the class of 1884, I wish to express to you our appreciation of your labors in our behalf, and to congratulate you upon your success in establishing so well the Dental Department of the University. When it was inaugurated two years ago through the efforts of members of the State Dental Society, they felt that it was needed and would be a success; but no one expected, in so short a time, the favorable results that have been attained. More students have availed themselves of its advantages than were expected, and there is every indication that their number will increase from year to year.

Despite the lack of facilities, we feel that the work accomplished will compare favorably with that of any of the older dental colleges; and in its teaching it is superior to them in originality of thought and method. As a result, the student must be able to do more than simply repeat answers to questions in a mechanical way. He must have such knowledge of the subjects taught as will enable him to write upon and discuss them intelligently. We, as students, can best realize the disadvantage under which you have labored.

We do not mean to complain. On the contrary, we feel very thankful for the numerous privileges and benefits we have enjoyed. Be assured that our *Alma Mater* will have our warmest sympathy, and substantial aid in the future. We feel that your present zeal in the cause of dental education will continue, and that, as the resources of the department increase, your labors will be correspondingly more satisfactory and pleasant.

To the citizens of Iowa City, we acknowledge you have

treated us kindly during our sojourn here, and have given your encouragement to all our undertakings. We are about to leave you, but you and your beautiful city will always hold a warm place in our affections. You have our best wishes for your welfare in the years to come.

Classmates, it is not a pleasant duty to say farewell! But we must say it. I hope it is only for a year, and that we shall all meet here again with the class of 1885, to celebrate their graduation, and to renew the pleasant memories of college days. Be that as it may, I wish you all prosperity. I believe you are men who will be true to your profession and to humanity; and if you are, you will surely win that success and happiness which you deserve.

“DIRTY-BIRDS.”

(A STUDY IN NATURAL HISTORY.)

BY PROFESSOR NOCKEMORF.

THE “*dirty-bird*” is not a native of any particular country, but has been found in all climes and for many ages. He is referred to in nearly all dead and living languages. The liberal translation into English, of all references to this bird is, “Only the Dirty-bird befools his own nest.”

Naturalists believed for a long time that there existed a particular ornithological species. Prolonged search was made, and great difficulties encountered in the attempt to correctly classify this *bird*. Now, by universal consent, it decided that any creature displaying the habit referred to, is a “Dirty-bird,” whether he be a long-legged, web-footed, pelican-beaked non-descript, or a high-colored, paraquit-nosed papagei—whether he be a stork, or a canary bird, it is all the same. The *habit* makes the Dirty-bird, the want of it, the blue-jay, parrot, goose, or duck, or any respectably classified ornithological specimen. The “Dirty-bird” may have feathers, or hairs—may be a quadruped or biped. The term is often applied by neat house-wives to domestic animals, such as dogs, cats, and little children. Adam, Linnæus, Cuvier, and others who have tried to classify living things, were well aware of the existence of this sub-class, but persistently ignored

it in their writings, on account of the unpleasantness of its characteristic. Noah should have prevented this species, or kind, from entering the ark; but probably in the hurry and worry of those seven days—having no umbrella nor “waterproof”—he did not *at the time* observe the pair that slipped in (just as they slip into respectable arks now) among the beasts that were not *clean*, and the *fouls*, and everything that *creepeth* upon the earth, and so, by the great law of reproduction in kind, this unclean fowl exists and thrives to-day. I am sorry that the early naturalists did not describe accurately specimens of this “Dirty-bird” whenever they found them, whether as two-legged, or as four-footed creatures; but the present age of exact science demands that we should let no such important matter pass without careful scrutiny and detailed description. I shall, therefore, in this study, try to describe fully one kind of “Dirty-bird” found in the west, so that other naturalists may be able to know it when they meet with it anywhere.

In appearance it resembles the human of the male persuasion; is generally of fine form and face; stands erect; is capable of acquiring tricks and maneuvers; differs from the gorilla in the attribute of speech; is liable to be mistaken for a *man*. So much for physical and mental qualities, now for its distinguishing peculiarities. I have observed two varieties differing but little, perhaps not enough to warrant the distinction. One has taken a course or two in a dental college, and has been especially favored by the faculty, financially or educationally, *i. e.*, the faculty has trusted it, and has received in payment “bills,” such as Micawber used to draw; or, the faculty has, from pity for the extreme ignorance of the creature, permitted it to pass the final ordeal by what is known as “the skin of the teeth,” or Nasmyth’s membrane.

The other kind has never attended a dental college, but by good behavior and the judicious use of friendly influence, has succeeded in obtaining a much coveted parchment, and an *honor* from the Trustees of a dental college. These are differences in the methods of the birds in getting into the “nest.” They get in, however; are stamped with the mark or seal of the nest; are known as belonging to the nest; are recognized as sons of the college. The *Alma Mater* blesses them, and makes no distinction between them and her other sons. Thus far; indeed, they cannot be distinguished from *men*. In a little while the favored

creature begins to display the characteristic of all "Dirty-birds," and can then be easily recognized by Naturalists; and the difference between it and a man, can be readily observed by all. While tenaciously *holding on* to what it took from the nest, viz: honor, title, diploma, position, etc., it begins to throw dirt and garbage into the nest itself. It soils and befouls the nest, and, after each offense, cackles, like the honest hen that has just laid an egg. This gives the faculty and trustees much annoyance, and extra labor in their efforts to keep the nest clean.

Everybody knows how hard it is for a conscientious body of teachers and guardians of a school to keep out parasites and disease germs, that continually menace the welfare of the school. Everybody, who has tried, knows how faithfully they must work to disinfect, and ventilate, and scrub, and whitewash, in order to suppress wickedness, and get rid of ignorance; but everybody does not know much extra care and labor is imposed upon the faculty, in cleaning the nest from the soil cast into it and upon it, by Dirty-birds that belong to the nest. A peculiarity worthy of record is that there are so many more Dirty-birds whose nest is a *dental* college, than can be found from other nests.

The heart of the graduate from a literary college thrills with pleasure when he recalls his dear old *Alma Mater*. He sings songs in her praise. He defends her from the attacks of the Philistines. Many an old man's cheek tingles with pride, and his eye lights up with youthful ardor, when he thinks of "Old Miami," "Kenyon," "Yale," "Harvard," or "Heidelberg." The country doctor, as he jogs along the weary road at night, beguiles the time by pleasant thoughts of his student days in the distant city, and he reveres his *Alma Mater*. The city doctor takes pride in defending *his* college openly against all opponents. He feels glad of its every success, and regrets its failure in any particular.

I have gone into these descriptions for the benefit of scientific Ornithologists, to help them in their classifications and study of the American species, and assist them in finding specimens for their cabinets and museums. How best to preserve the specimens *post mortem*, I am not prepared to say, unfortunately, never having observed a dead one.

How to prevent injury to nests from these Dirty-birds is also a difficult and untried question. Essence of golden rule, applied with a syringe, has been recommended. Repeated small doses of

true manliness, if assimilation is good, or can be induced, might be beneficial. This remedy, if given even in attenuated doses, would tend toward causing the birds to disgorge themselves of their titles, diplomas, honors, etc., even if it does not stop the befouling habit.

It is believed that the Dirty-birds are increasing in numbers, and becoming pests, like the imported Sparrows, therefore, the attention not only of naturalists but of philanthropists, should be turned to them, either to devise means for their suppression, or for the preservation from injury of the nests.

DO WE ADMINISTER CHLOROFORM SCIENTIFICALLY?

BY DR. WALTER W. HARRINGTON.

SINCE chloroform was first used as an anæsthetic, little or no progress has been made in the manner of its administration.

*An account of the first administration of chloroform to man, is given by Dr. Miller in the following language :

Drs. Simpson, Keith and Duncan, sat, each with a tumbler in his hand, and in the tumbler a napkin.

Chloroform was poured on each napkin, and all patiently inhaled, and waited for something to turn up. After a probation, Dr. Simpson, drowsy as he was, became convinced that something *had* turned up, for he heard Dr. Duncan snoring and Dr. Keith kicking about in an inelegant manner.

All those effects had been manifested in a very short time, and the experimenters (or experimentees) all agreed that chloroform was far more agreeable than ether.

This, then, is the manner in which chloroform was first administered ; and this is substantially the manner in which it is administered to-day.

That there are serious objections to this method, and that it is not altogether satisfactory, will readily be admitted by all who have given the subject any study, and is plainly evinced by the fact, that many of our most highly educated surgeons feel more anxious about, and dread the administration of the chloroform,

* Sansom, Chloroform, its action and administration. Pages 23 and 24.

more than they do the most serious operations; and the majority of them will confess a feeling of relief when their patient has fully recovered from its effects. The reason of this is: they know that no human knowledge or skill can foresee or avert the possible dangers of chloroform administered in the loose, unscientific manner now in vogue. When operations are performed under certain conditions, or medicines administered in certain quantities, we know what results to expect.

"But who, oh, death! can tell us, when to look for thee," when we administer chloroform from a handkerchief?

As well might we hope to stop the bullet, or change its course, after it has left the gun, as to regulate or contest the action of chloroform administered from a handkerchief.

I admit, that, in many instances, "Another death from chloroform" was directly due to criminal ignorance, or inexcusable carelessness; but this has not *always* been the case; for, we all know that death has occurred in the hands of the most skillful, and experienced, and where every precaution seemed to have been taken to prevent such a result.

Sansom, (who is generally recognized as being good authority), in summing up the dangers of the incautious administration of chloroform, says:

"I recognize two principles for attaining the maximum of safety, in chloroform administration:—

"1st. The continuous inhalation of an atmosphere of *known strength*, an atmosphere of about three and one-half per cent. We may call this the principle of *definite dilution*.

"2d. The administration of an extremely dilute atmosphere at first, and *progressively* increasing its strength. We may call this the principle of tolerance."

I would like to ask: Are these two principles put into practice, or *can they* be put in practice, when an indefinite amount of chloroform is subjected to an unknown degree of heat, and allowed to evaporate into an unmeasured volume of air?

We are extremely careful to have our liquid preparations made of a known and uniform strength, and we call them official preparations. This is right and proper, for it admits of their being given with mathematical precision. Were it not so, their administration would be mere guess-work, and their effects variable and uncertain. Could we not add to the list, an official preparation of chloroform vapor in air?

What physician would be satisfied to pour his medicines into Lake Erie, and have his patients drink the water thus medicated? Would not the results be as uncertain, (and in the case of some agents), as often fatal? And yet, administering chloroform from a handkerchief is worse and more unscientific than that would be.

"We live at the bottom of an ærial ocean, whose depth is many times that of the deepest sea. Its invisible tides surge round us on every side. More restless than the sea, its waves beat to and fro, and never know a calm."

Vapors and gases have the same relation to this great ocean of air, that liquids do to oceans of water. We must have in mind that time, space and heat are necessary to convert liquid chloroform into vapor, and to insure a perfect diffusion of the vapor through the air, *i. e.*, an even blending of the two. It often occurred to me while watching the administration of chloroform from a handkerchief, that if the vapor and the air were not colorless, and were of different colors, we could see the chloroform entering the lungs in clouds and stratas, just as we see tobacco smoke floating through the air.

After entering the lungs, the semi-fluid vapor being acted on by the heat of the lungs (about 100° F.), expands, and by its increase in volume is forced into the most remote of the air cells, carrying with it no oxygen to modify its effects and sustain life. As the anæsthetic condition deepens, the breathing becomes more shallow, and the chloroform vapor, not being diluted by the inspiration or eliminated by the expiration, soon produces effects that pass beyond the control of the administrator. It is as desirable to measure accurately the strength of the vapor, and to thoroughly and evenly diffuse it through the air breathed, as it is to weigh or measure and thoroughly mix a dose of medicine administered by the stomach. It has been conclusively proven, both by experience and experiment, that it is not the *quantity* taken into and retained in the system that produces fatal effects, as much as the manner of its introduction. "It is its early influence that causes the greater part of the fatality."

"If there be too much vapor of chloroform in the air breathed, it may cause sudden death even without previous insensibility," and it is not only in the early stages of inhalation, but where the smallest quantities have been used that cases have been rendered suddenly fatal.

The great objection to the administration of chloroform

from a handkerchief, is its irregularity, the utter ignorance we have of the strength of the vapor inhaled at any given time. At one inspiration, a quantity of air *saturated* with chloroform may enter the lungs; at another a breath may be taken of almost pure atmospheric air.

We know that twenty-four minims of chloroform, if breathed without any waste, is sufficient to produce and sustain anæsthesia for a prolonged operation.

When chloroform is given from a handkerchief, it is usual to *commence* with two or three drachms, and to add more from time to time as required. Thus, in the course of an operation, two or three ounces are frequently used. Obviously there are no data on which to found a statement of the strength of the vapor inhaled at any given time.

*To give chloroform on a handkerchief, a piece of lint or a sponge, is at once as unscientific as it is wasteful, and as wasteful as it is unsafe.

Given in this way no check whatever is put upon the quantity absorbed by the patient. While the surrounding air, charged also with the vapor, is annoying to the operator, and to all around. I have seen a bystander obliged to leave the operating table, owing to the influence of the chloroform vapor, all of which was being wasted.

Sansom adds one observation to this which is, "That we should be as careful to dilute our chloroform vapor with atmospheric air, as we are to dilute the prussic acid which we administer to the stomach with a sufficiency of water, and that we should no more excuse the administration of an indefinite proportion of chloroform vapor, than we should excuse the dispensing of a potent medicine without weighing it in a balance or measuring it in a graduated vessel."

*Dr. Richardson, "Lectures on the Teeth."

(To be Continued.)

DENTISTS should record all their engagements, give each patient an engagement card. Then, by *keeping* their engagements they can teach their patients to keep them.

MICHIGAN STATE DENTAL SOCIETY.

BY A MEMBER.

AMONG the very noticeable things that transpired at the annual meeting on March 26th, at Detroit, was the clinic by Dr. Harlan, of Chicago, in the treatment of Pyorrhœa Alveolaris. The use of peroxide of hydrogen, and the method of treatment, seem to be new; and his manipulation, and the application of the medicine, would seem to inspire hope at least of ultimate success in this very common disease, and one that, until recently, has been beyond the reach of medicine.

To be sure Dr. Atkinson has claimed success with aromatic sulphuric acid, and the formation of new alveolar substance; and there are a few others who have had a measure of success with other remedies, in cases where the disease was not too chronic. But the average dentist has been baffled in almost every case of long standing, and has been very willing to say, "It cannot be done." But Dr. Harlan's cleansing of the debris with chisels, in the direction of the apex of the root, and the effervescent character of the medicine, to effectually remove every particle of dirt by its self-cleansing properties, out of the pockets, spontaneously and quickly, and the spoon-shaped instrument to scarify the borders of the alveolar process, and remove the sanguinary calculus, so the zinc preparation can produce new granulations of *something* which, if not tooth-bone, has such an affinity with the gum and alveolar process that it effects a cure where all other remedies have failed, seems a new revelation to the whole profession, and a healthy hope to the world. When the subject of diseased pulps came up, those who had been considered well up in their profession, "broke ranks," and Dr. Thomas and Field, and some others, declared they were somewhat discouraged by their failures, and had almost begun to think it was as well to destroy the pulp with arsenic and remove it at once, as to have so many failures in trying to save it alive, "if that was ever done."

Dr. Robinson stood almost alone in defence of capping pulps, and contended that carbolic acid, in connection with Houghton's *os-artificial*, which is the mildest form of zinc, was a success, and stated that more than ninety-five *per cent.* could be saved in that way, and that the pulps remained alive. He contended that the

pulp-tissue was only paralyzed, that the carbolic acid, judiciously applied, did not destroy pulp-tissue, that it only intoxicated it, as alcohol intoxicates the tissue of the brain, that it reduced the inflammation so that pulsation could go on without pressure on the sides of its bony home, and that the capping of the pulp with the powder mixed with carbolic acid, after all the debris had been carefully wiped out, and then to apply the powder of the *os-artificial* with carbolic acid as a dressing before mixing it with the liquid which hardens it, would so lift the dressing from the pulp by attraction, as the acid of the *os-artificial* was stronger in affinity, they were drawn together by attraction, as the invisible water in the air is drawn to the earth. If the pulsation continues the pulp remains alive. One cause of failure in such operations is the occlusion of the fillings with the antagonizing teeth.

After treatment of diseased pulps the teeth need rest, and like invalid persons, should be relieved for a time from labor. Prof. C. S. Case, of Ann Arbor, said he was sorry to disagree with so aged a member as Dr. Robinson, and a man of so large an experience. He thought it was unsafe to take such risks in treating diseased pulps. Prof. Taft said he did not intend to say a single word, but we could not afford to have such sentiments go out to the world as had been expressed here by good operators, by men who were considered leaders in the profession. The verdict of this meeting must not be allowed to go out to the world that the treatment of diseased pulps is a failure. He believed the treatment of diseased pulps was as successful as the average dental operations; that we had before us the evidence that some persons were able to treat diseases successfully that other persons could not; that the physician was not discouraged because he could not permanently cure every disease that came under his charge. He believed the cure of diseased pulps was practical, and often successful in careful hands; and the testimony of those who declare it to be a success was founded on years of careful and experimental evidence. Our operations were as successful as those performed by the average physician in his general practice.

Quite a long and spirited talk was indulged in about those who had violated the Code of Ethics, as charges had been preferred against some of the oldest members, and those who had stood high in the profession. The "*didn't care*" letters that were received in reply to the accusations, and the general tone of many

members in good standing, showed a strong disposition on the part of some who loved the profession and the society to endeavor to revise the code so it would fit the demands of to-day, or they would give it the go by altogether.

It has taken long years to revise the creed of the Congregational Church; and now that it has been done, we ought not to remain behind in revising an old worn out carcass of aristocracy that belonged to half a century ago. The dividing line between success and failure is as delicate as between health and disease; and it is so in all professions and meetings of this sort. This meeting was healthy and strong, as a whole, and will be of great use to all who were present. The discussions were so pointed, and withal so amiable, that the meeting is really a necessity to those who expect to keep abreast of their profession. Nothing that has not some inherent good in it can remain long, even if voiced by the multitude. The old code will be worse than useless, if it cannot stand the silent criticism of live men and be pronounced good.

“ALTOGETHER.”

BY DR. S. M. WILKIE, SPRINGFIELD, ILLINOIS.

IN reading some of the contributions to the April issue of the OHIO STATE JOURNAL OF DENTAL SCIENCE, one cannot help but cherish the *prophetically hopeful* feeling that the entire dental world, or the better part of it, is henceforth to be permeated by its sublimest thought—its superb achievements. The voice of the laity calls for it. The stroke of the excavator and plugger echo it. When we think to what disrepute dentistry has been brought by ill-timed operations and unqualified operators, we must say that ours is a very charitable laity.

It is time that the people who have been the subjects of charlatanry voiced a word in defense of themselves. While we condemn poorly qualified dentists, perhaps there is a better way to deal with them than by harsh criticism; for in this we arouse a sympathy for them, which does the dental profession more harm than we, good. A certain class in every country will look upon it as they look upon competition in business. They pass it by as such.

It seems to the writer that the most affable spirit and carriage is demanded of us—a genteel treatment of our inferiors, if we would let the public see that our effort at legislation is not an effort backed up by jealousy and a desire to monopolize, but by a desire for their good, the welfare of their children, their children's children, and the offspring of the stranger. Many who are qualified to assist the less favored, devote every chance to condemnatory denunciations; or perhaps their look and speech are more chilling than a breeze from the Norseman's coasting ground.

He who would do good must first put himself in the way of doing good. No one man knows it all. Possibly there may be some degree of merit below us. At all events, the best we can do is to make the most of our legislative enactment. Since we cannot make a retroactive law, and since we must bear for the present, with some who are not well qualified dentists, is it not better to endure what *must be*, in the most befitting manner. Within the last ten years our improvement has been vast, particularly in a point of law; and the most wholesome thing that can be done is, that when from our leaders we hear the watch-word, "Altogether," let not our help be wanting. Then it may be said of us:

"He was a scholar, and a ripe and good one;
Exceeding wise, fair spoken and persuading,
Lofty and sour to them that lov'd him not;
But to those men that sought him, sweet as summer."

The writer does not wish to be understood as upholding any half-way matters in the dental profession. But that it behooves us to make the best of a poor predicament. There is much charity in the world, and if we are void of consideration, it will come from somewhere, and a generous community will say, he

"Who does the best his circumstance allows,
Does well, acts nobly; angels could no more."

A great deal has been said pro and con, as to the prefixing M. D. to D. D. S., thus making dentistry essentially a specialty of medicine. In all probability, there will always be good men advocating both sides of the question. It is a great question, and like all questions, will be divided. The writer, as a student of dentistry, does not feel competent to an intelligible expression upon so vital an issue. Let those only who are capacitated, and

whose experience is unbiased by any past circumstances, speak to us.

In the issue of the "O. S. J. D. S." above referred to, there was a forcible effort by F. A. Hunter, D. D. S., in his address to the graduating class of the Ohio College of Dental Surgery. While there was in his remarks much of a dash at words, and a play at coquetry, there was some solid dental food in that address. His theory, or thought, whichever is the better name for it, it might be well to adopt, were we not, by nature, lazy. We are all naturally lazy. With perhaps now and then an exception, one does not go far beyond the requisition of the schools.

Did we ever stop to think that the majority of dentists who graduate stop right there, as if they had reached the goal of their existence? They are only at the beginning. I hope I may be a false prophet, if I say they will know less of theoretical dentistry in ten years than at the time of graduation. Hence, it is not amiss for us to say that great advantage comes from the utmost rigidity during college life. He who, takes from college influence and requirements, where nothing is expected of him aside from the routine of his professional duty, is a student in the sublimest sense of the word, if he continues his pursuit of knowledge. Otherwise he is a mummy, fixed up to keep only for certain purposes. The great men in medicine and dentistry never grew weary of toil. We remember then, not any more for their achievements than for their willingness to achieve. Their names are household words to us, not any more for what they did than for the motives that prompted them to do.

Whether, therefore, dentistry is to assume an equal status with medicine, or to become a specialty of the same, or be regarded as a trade, in which the novice may loftily aspire, depends upon how much real, courteous professional equity there is among its men.

MEANS OF SUCCESS OF DENTAL SOCIETIES.

BY A. BERRY, D.D.S.

[Read before the Cincinnati Dental Society.]

THE dental society is an American institution. The American Society of Dental Surgeons was organized in 1840, sixteen

years before a similar society existed in any other country. It brought together the best men of the profession from every part of our country, and did a noble work, greatly advancing dental science and art. Previous to this time, as our fathers told us, dentists were isolated from each other, and every one kept to himself any improvement he made.

The Mississippi Valley Dental Association was formed four years after the American; and for more than a quarter of a century it has been the oldest dental society in the world; the elder society having ceased to exist.

Our society was organized a few years later than the Mississippi Valley, and has exerted a highly beneficial influence on the profession of this city and vicinity.

The membership of dental societies should be composed largely of those who feel a deep and abiding interest in their profession, and are willing to make sacrifices of time and labor to promote the objects for which they are associated. A society of persons indifferent as to its successful working is weak, and can accomplish but little.

Unless for good cause, there should be no failure to hold regular meetings at the times appointed. Neglect in this respect is liable to lead to indifference; and non-attendance in future.

Timely notice of every meeting, with the program when practicable, should be given to each member. Care should be taken to select such subjects for discussion as will be interesting and profitable to the society. The program should be carefully studied by every member, and especially by those who intend to participate in the discussions.

Reading minutes and essays, and delivering speeches, should be in a distinct tone. An inferior essay or speech delivered with a distinct voice, showing that the speaker feels deeply the importance of his utterances, will make a stronger impression on an audience than able discourses, or papers, given in an indistinct tone.

Speeches should be short, except on subjects requiring considerable elucidation. Speakers should confine their remarks to the topic under discussion, and without any attempt at oratorical display.

The exercises of meetings should commence at the appointed

hour. Delay involves not only loss of time, but usually has a depressing effect on the members present.

The officers, as well as others to whom has been assigned the reading of essays or other duties, should, if possible, be present promptly at all meetings. The business should be conducted in an energetic manner, and the program strictly followed, and no one with an axe to grind should be allowed to interfere with it. A notable instance of evil resulting from neglect to follow the pre-arranged order of exercises—which several of those present recollect—occurred at a meeting of “the best dental society,” when a gentleman, with an object in view, was permitted to occupy nearly all of the time of the most important session, on a subject foreign to the program. Although through a mistaken politeness, no objection was made to this at the time of its occurrence, its effect was to prevent a quorum at the next meeting, and a suspension of the work of the society for several years.

Correspondence.

“I charge you that this epistle be read.”

TORONTO, OHIO, April 30th, 1884.

Dr. Watt:

DEAR SIR:—As the following was a rather singular case to me, I send it to you for publication, if you desire to publish it.

Monday morning, April 21st, 1884, a man by the name of St. Clair called upon Dr. Farquar, at Damascus, Columbiana Co., Ohio, for the purpose of having several teeth extracted. Dr. Farquar administered to the man an anæsthetic, supposed to be nitrate of amyl. The teeth were extracted, but the man failed to return to consciousness in the usual length of time; and all efforts to bring him to failed, and he breathed his last, surrounded by his family. The doctor had gone to the residence of the man to perform the operation.—*Extract from the Steubenville Gazette.*

Yours Respectfully,

S. W. COCHRAN.

A RAPID METHOD OF REPAIRING BROKEN VULCANITE PLATES.

HORICON, Wis., April 29th, 1884.

Editor of Ohio State Journal of Dental Science :

ALTHOUGH the method I employ may have long been in use, I have never seen it in print, and will give it for the benefit of any of the profession to whom it may be new.

Place the broken parts in their proper position and secure with wax ; invest the mucous surface in quick setting plaster, and as soon as firm, remove the wax ; now, with a sharp scraper, cut away the plate, where a patch is required, to about half its original thickness, leaving a clean, but slightly rough surface. No dowels are required. Heat a large steel burnisher until, when touched with the wet finger, it will give the peculiar sound of a sad-iron ready for use, and with it, burnish down thoroughly the requisite amount of fresh rubber, being careful not to sear either the fresh rubber or old plate. Invest at once, vulcanize and finish. If the operation has been neatly performed, the patch will be as firmly attached as if it were a part of the original plate, and the operator will have saved much valuable time.

Faternally,

A. B. CRAWFORD.

Editor of the Ohio State Dental Journal :

“Consistency thou art a Jewel.”

WOULD it not be well for a journal of the standing of *The Independent Practitioner* to cut out such an advertisement as appears upon the third page of the cover, when in the same number it takes medical journals to task for being guilty of “the most offensive quackery?” (See page 266, May number.)

C. EDMUND KELLS, JR.

A brush is there advertised that restores whiteness to teeth “unless the decay has gone too far.” A colored sheep doctor restores dead sheep by blowing breath through them with a goosequill, unless death “has gone too far.”—ED. JOURNAL.

Editor's Specials.

"Write the Vision and make it plain."

"IS THERE ANYTHING WHEREOF IT MAY BE SAID,
SEE, THIS IS NEW?"

IN the *Journal of the British Dental Association* for March 15th, we find the following: "Our attention has been called by Mr. R. H. Woodhouse to the following extract from the recently published 'Life of James Nasmyth,' the inventor of the steam hammer. Amongst a long list of valuable and interesting inventions and contrivances, is one headed, 'A mode of transmitting rotary motion by means of a flexible shaft formed by a coil of spiral wire or rod of steel.' With reference to this invention, which, as adapted to the purposes of the dental surgeon, has proved such an immense boon to the profession, Mr. Nasmyth writes as follows:—'While assisting Mr. Maudsley in the execution of a special piece of machinery, in which it became necessary to have some holes drilled in rather inaccessible portions of the work in hand, and where the employment of the ordinary drill was impossible, it occurred to me that a flexible shaft, formed of a closely coiled spiral of steel wire, might enable us to transmit the requisite rotary motion to a drill attached to the end of the spiral shaft. Mr. Maudsley was much pleased with the notion, and I speedily put it in action by a close coiled spiral wire of about two feet in length. This was found to transmit the requisite rotary motion to the drill at the end of the spiral with perfect and faithful efficiency. The difficulty was got over to Maudsley's great satisfaction.

Four years ago I saw the same arrangement in action at a dentist's operating room, where a drill was worked in the mouth of a patient to enable a decayed tooth to be stopped. It was said to be the last thing out in 'Yankee Notions.' It was merely a replica of my flexible drill of 1829."

The average dentist best knows Mr. Nasmyth as the man that skinned a tooth, tanned its hide, and called the leather "Nasmyth's membrane." And may it be a "replica" of that with which Job escaped over 3000 years ago, which he called "the skin of my teeth?"

But after all it is a matter of interest to see how a valuable principle may lie unused till a new necessity calls it up. We suppose Merry's drill was the first dental instrument in which the coil principle was used. Now none would be willing to practice without using the coil principle in some shape.

Similar things occur in Therapeutics sometimes. A remedial agent is extensively used for a time, and again abandoned for years, perhaps, when some influential physician or surgeon recalls attention to it, and it rapidly regains its former popularity. The warm air syringe has a history something like Nasmyth's coil drill. It was invented in 1855, went rapidly into use, especially in the West, and after a time it was seldom seen. The rubber dam made it possible to keep cavities dry, if once made dry, and the neglected instrument, even though much deteriorated as compared with the original, was again taken up; and now an office is not regarded as equipped for business without one. And this is the more remarkable when we consider that, owing to the clumsy form of the instrument now in market, less than half the advantages derivable from it are obtained. We may refer to this instrument again.

IDENTIFICATION BY DENTISTRY.

SOME of our more aged readers can remember the Webster-Parkman murder trial. In a fit of anger, and probably without intending it, Dr. Webster, a professor of chemistry in Harvard University, killed Dr. Parkman. To conceal the murder, he burned the body. A lower artificial denture was found in the fireplace. Dr. Keep was Dr. Parkman's dentist. He carefully kept all his models in numbered "pigeon-holes," which were entered in a ledger. By referring to his books, he at once found the model of Dr. P.'s lower jaw, and, though it was of a very peculiar form, the plate exactly fitted it.

In a late ocean horror, a young man identified the remains of his mother, by comparing the mouth with the family dentist's record of the fillings in the teeth. The identification was complete, although otherwise the remains were mutilated quite beyond recognition.

Over a dozen years ago we filled some teeth for a good looking young man. A corner had been broken off a central incisor.

He insisted on having the form fully restored, so we built out the gold as nicely as we could. He was very proud of it, and as in both mirth and anger he freely exposed his upper teeth, he had no trouble in displaying his gold. In a few weeks he went into a house where a woman was alone, and having an axe in his hand he told her to sit still and remain quiet, or he would split her head. His angry grin displayed the gold, which she noticed; and though he got away with two thousand dollars in greenbacks, he was hunted down by the police, who searched for the "golden tooth," giving him no time even to spend the money. He had sought refuge in an obscure village, away from all line of travel, yet he could not conceal the gold, and was arrested accordingly.

Another case sounds to us like an almost forgotten dream, as it is referred to by one of our exchanges. An excise man, named O'Connor, called on his friends, Mr. and Mrs. Manning. They killed him for his money, and buried him in quicklime, under the stone floor of their kitchen. When the body was found, the lime had destroyed the features, quite beyond the point of possible recognition. An artificial denture was found in the mouth of the victim, which exactly fitted the model of O'Connor's mouth, which had been carefully preserved by the dentist. On this testimony the Manning's were hanged.

If any of our readers can tell us where and when this case occurred, we will be thankful for the information.

THE following is from *The News Letter*, the college paper of Iowa College, Grinnell, Iowa. In the meantime, one of its two managing editors is a senior named GEORGE WATT LEWIS:

"Some of our seniors, and especially some of the ladies, baffled all attempts at criticism in examination. One of the professors, who was an examining committee in philology, and who believed, or at least feigned, that he believed in the divine origin of language, asked many questions, all of which were promptly and unequivocally answered. Finally he asked the very pertinent question, 'What incentive had Adam that ever led him to use language?' This also met with a prompt and conclusive answer: 'Why, he wanted to talk to Eve.' The professor asked no more questions."

Of course "he wanted to talk to Eve," inasmuch as Eve was the first package *mailed* for Adams's express company.

IF?

IN a well written article in the February number of the *Archives of Dentistry*, we find the following: "We are told that decayed dentine has lost little or none of its lime salts, and if this is so, what becomes of the chemical theory so far as it relates to the decay of dentine?"

Here is a similar conundrum taken from Blynx' works, (Bagdad Edition, remember): We are told that the chief's horses are securely tied in their stalls, and that the stable door is locked. If so, what becomes of the popular theory that they were all stolen by wild Arabs?

Further down, the editorial adds, "But if it is shown beyond a doubt, that the normal proportion of lime salts remain in decayed dentine," etc.

Now think of a dentist cutting away the organic matter left in an ordinary cavity of decay—slicing layer after layer of soft gelatinous-like matter, and still believing that it is as rich in lime salts as if nothing had befallen it! This is one of the cases in which the question can be answered as accurately without analysis and microscope as with them.—Not the question as to how much, but as to whether any reduction has occurred. In some varieties, the displacement of inorganic matter is not so obvious, but in the one referred to, which is the most common, their displacement is as readily observed as is the removal of the ears of corn from the stalks.

TRIBUTE TO A FRIEND.

THE following may seem as if off time; but as "the memory of the just is blessed," nothing is lost by recalling to our memories the good examples set by those now departed who, in life, were both good and great. The paper refers to a special friend yonder, and the bulk of it was written by a special friend here; and we have waited and watched to see it in a volume of transactions, or in some way set before the profession; for it is of too much value to be buried in obscurity, or lost in oblivion. The paper was adopted by the Indiana State Dental Society, June, 1883, as follows:

ISAAC KNAPP, M. D.

Born March 23d, 1814, at Dummerstown, Vermont.

Died May 9th, 1883, at Fort Wayne, Indiana.

EXTRACT FROM PROCEEDINGS.

"The death of Dr. Isaac Knapp was formally announced at evening session of June 27th, 1883, by Dr. W. F. Morrill, of New Albany, who presented the following resolution :

"WHEREAS, This Association has heard with deep regret of the death of Dr. Knapp; therefore be it

"*Resolved*, That the regular exercises of this Association be suspended at 11 a. m., to-morrow, in memory of the deceased.

"Resolution adopted and memorial exercises made special order for that hour. The time having arrived, remarks appropriate to the occasion were made by Dr. S. B. Brown, Fort Wayne; Dr. J. Richardson, Terre Haute; Dr. Merit Wells, Dr. S. M. Goode, Indianapolis; Dr. Lewis Jordan, Dr. F. M. Hamsher, Delphi; Dr. S. T. Kirk, Kokomo; Dr. T. A. Goodwin, Warsaw; Dr. S. J. Mason, Fort Wayne. Dr. W. F. Morrill, of New Albany, offered the following:

"TRIBUTE TO DR. ISAAC KNAPP, OF FORT WAYNE.

"In the death of Dr. Knapp, one who was so aged, honored and beloved, there is a feeling of personal bereavement, as if we were a broken family circle. Coming together annually as we do, forming acquaintances and friendly relations, it is not strange a pang of sorrow steals over us, when one of our number passes away to his abode. 'beyond the stars.' All of us who knew him must confess to a personal loss, and the profession which he adorned feel still greater his loss.

"Dr. Knapp was not of a robust constitution, but was inclined to precarious health; he was undoubtedly a great sufferer. His bearing was always dignified, modest, sincere and kind. His sense of honor, politeness, amiability, commanded every one's respect and admiration. He was liberal, and his heart was right. His conversation ran in grooves of moral culture. His discussions of topics pertaining to the science of dentistry and its welfare, always indicated a clear, intelligent comprehension of the subject. He was listened to with pleasure and influence. He carried weight, as his taste and judgment were good. He was endowed

with a large share of gentleness, easy manners, sympathy and great kindness, so that he could pour a flood of sunshine over suffering patients to whom he daily ministered.

"That our deceased friend was a Christian gentleman, a follower of the Master in all the essential requirements of a religion that exalts mankind and prepares him for a future life, we fondly believe. The life, character and professional abilities of such a man will be greatly missed at the meetings of this Association, and especially so in the community where his services were given.

"To-day the mortal part of our friend is hid away in the bosom of Mother Earth, where he is never to come and never to go. And from yon mound, beneath which he sleeps, the passer-by may see growing in smiling beauty sweet blossoms, bright emblems of his blameless life. No clouds nor darkness are around him. He dwells in inextinguishable light, in love, in peace.

"Life which we prize is a long drawn agony;
Only its pains abide; its pleasures are
As birds which light and fly."

"Farewell, devoted brother! Thou hast not lived in vain. Along thy pathway good words fell from thy lips, and from thy hands good deeds. The world is made better for thy living in it. And unto thee we pay homage and affectionate tribute in remembrance of thy worth and many virtues.

"W. F. MORRILL.

"June 27th, 1883.

"On motion, the above was ordered printed, spread on record, and a copy sent to family of deceased.

"R. W. VAN VALZAH,

"J. E. CRAVENS,

"Secretary.

"President."

It was intended to have this in the April number but it was crowded out, and fared the same with the May number. The transactions of the Indiana State Society have been recently published, and contain this.

DEATH'S DOINGS.

A FEW days ago the remains of DR. L. P. MEREDITH, formerly of Cincinnati, and later of Abilene, Kansas, were brought here

for interment. We were too ill to attend the funeral services, and have as yet been unable to ascertain the particulars of his decease. Dr. M. was born in Xenia, we presume about 1840. He was a nephew of the late Judge Sexton of this place, and a cousin of the well-known physician and surgeon of New York, Dr. Samuel Sexton. Not the oldest are earliest called. Who next? All very soon. Ready?

The bereaved family of Dr. M. have our sincerest sympathy.

INFORMATION WANTED.

THE following we clip from the general news department of one of our local papers. We hope some one who knows the particulars of the case will furnish us all the information obtainable in reference to the case. The reported deaths from nitrous oxide do not always stand investigation, as, indeed, very often the facts warrant a conclusion that the gas had but little influence in causing the fatal results. One case the patient was choked to death by a piece of cork. One went to school for several days keeping up in his studies, and not failing on the play ground. On the following Saturday, a very cold day, he went skating, and contracted a severe attack of acute pneumonia from which he died. A fatal case at Exeter, England, resulted from poisoning by nitric oxide, one of the most deadly gases known to science. We are waiting to hear of a case of death from old age charged to the gas, and our patience is not likely to be severely tried. But the reader must not infer that we regard the gas as free from danger, or fit for a plaything. But here is the item:

“DEATH FROM NITROUS OXIDE GAS.

“PHILADELPHIA, May 12.—Kate Emmer, a young lady living at Riverside, N. J., died to-day from the effects of “laughing gas,” administered by a Philadelphia dentist. Two weeks ago she had sixteen teeth extracted, and after the operation showed signs of insanity. She made attempts at suicide by throwing herself in the river and refusing food. From a buxom girl of one hundred and sixty pounds she wasted away to a mere skeleton. The physicians state that her death was produced by the shock attendant upon the three doses of the gas given her by the dentist.”

Who prepared the gas? And by whom was it administered?

Was it the compressed nitrous oxide? Will some one tell us all about it?

It is not uncommon, and perhaps quite natural, to blame the gas for a death or a disease occurring even at a period quite remote. A few years ago we refused to give the gas to a young lady because there was plain indication of a near approach of the menstrual period. Afterward another dentist declined to operate for the same reason, but set a time for her to call, which engagement she kept, took the gas and had some extracting done. The administration and operation were both highly successful, and she returned to business at once, and suffered no inconvenience. Her health remained good for some time, but eventually she was stricken down with typhoid fever and died. The physicians' certificate stated that the cause of her death was typhoid fever; but after the bill had been presented to her father, he became furious, and charged the dentist with killing her, threatening a suit for damages, if not a criminal prosecution, claiming that the two physicians who had waited on her, sustained his charges. That we had once declined to give her gas, he used as an argument that it was not proper for her to take it under any circumstances; and our statement that we would have given it under the recent circumstances, had no influence in pacifying him. He seemed determined to remain angry, and perhaps all the more because there was a bill to pay.

This case came under our own observation; and whenever we hear of a death from nitrous oxide, as in our quotation above, we always are anxious to have all the particulars. Powerful medicines are all more or less dangerous, and too much caution in their administration is not likely to be used.

"The physicians state that her death was produced by the shock." Did they know? And if so, do they know what caused the fatal shock?

APOLOGETIC.

ALL our work on this number has been done between the paroxysms of a very obstinate intermittent fever. And when we state that the attack was a double tertian, the reader will understand that the intermissions were of short duration. This is our

apology for any serious defects that may be noticed; and it explains the omissions of "book notices" from the present number. We must ask publishers to be patient. It is said that a fever finds the weakest points of the constitution. This attack has made choice of our head to such extent that we could not examine new books.

Societies.

"Wherewith one may edify another."

INDIANA STATE DENTAL SOCIETY.

WE have seen no notice of the next meeting of this lively society. Is the executive committee a slow coach? Nearly all the societies send us notices of their meetings just in time to be too late; often we feel sad to think that we can do the society no good through our Journal, when it is not our fault, but a result of the old thief "procrastination" in partnership with the secretary or executive committee. But—The Indiana State Society will meet in Indianapolis, Indiana, June 24th, 25th and 26th. The State Board of Examiners will meet at the same time. Dr. M. H. Chappel is President, and Dr. R. W. Van Valzah is Secretary.

THE THIRD ANNUAL MEETING

OF The Odontological Society, of western Pennsylvania, will be held on Tuesday, June 10th, 1884, at the office of Dr. W. E. Van Orsdel, Sharon, Pa. Train leaves Pittsburgh Union Station at 8:05 A. M., Pittsburgh time.

Respectfully,

H. DEPUY, *Secretary.*

PROGRAMME.

1. Essay—Our Failures, by Dr. J. G. Templeton.
2. Professional Success, from a business standpoint, by a Friend.
3. Clinic—Preparing and Filling a Nerve Canal, by Dr. Whiteside.

Compilations.

"Gather up the Fragments."

SPONGE GRAFTING.

NOTHING else in surgery is to us so interesting and at the same time so mysterious as the process called sponge grafting. It is not likely to be useful in dentistry, but may be highly so in oral, or facial surgery. We insert a report of a case which will give the reader a better idea of the process than would any description we might give.

A SUCCESSFUL CASE OF SPONGE GRAFTING.

Dr. Norman Poeritt reports a case of sponge grafting, conducted according to the method proposed by Dr. Hamilton, in the *Edinburgh Medical Journal*, for May, 1882. Those readers who are unacquainted with Dr. Hamilton's process of sponge grafting are referred to his original paper in the same journal for December, 1881. The patient was a boy fourteen years of age. He had fallen against a revolving drum, and his right cheek presented an oval charred cavity four inches long and two inches in the greatest breadth. The cavity had the appearance of a burn, the result of the severe friction to which the surface had been exposed. A piece of sponge, prepared according to Dr. Hamilton's directions, was so placed as to exactly fill the cavity, without rising above its margin. Protective silk was laid over the sponge and the whole secured with plaster. Boracic lint and wadding and a bandage completed the dressing. On the fourth day after the dressing was applied, a small granulation was found protruding through the upper portion of the sponge. Five days later the sponge had been completely concealed by the granulations, but could be detected by displacing the latter with a forceps. After two weeks the whole of the sponge had disappeared, with the exception of a few small particles. Its place was occupied by healthy granulations, at the border of which cicatrization was taking place. After another period of four days the wound was only three-fourths of an inch long and one-fourth of an inch broad, and was rapidly cicatrizing.

OUR own observation and the testimony of observing physicians, lead us to believe that no classes suffer more with headaches than do the dentists. Among the various suggestions below, we hope many of them may find means of relief:

REMEDIES FOR HEADACHES.

The following receipts and suggestions for the treatment of different forms of headache are collected from a variety of trustworthy sources:

Two grains citrate of caffeine, in capsule, taken every half hour, is a very effectual remedy in nervous and sick headaches. One or two doses are often sufficient to give complete relief. The only objection to its use is sleeplessness, which sometimes results if it is taken in the evening. It is preferable to guarana as being hardly ever rejected by the stomach.

The following, according to Dr. W. W. Carpenter, is very effectual in most forms of headache: Muriate of ammonia, three drachms; acetate of morphia, one grain; citrate of caffeine, thirty grains; aromatic spirits of ammonia, one drachm; elixir of guarana, four ounces; rose water, four ounces. Mix. Dessertspoonful every ten or twelve minutes.

In nervous headache, Dr. W. A. Hammond states the value of various drugs as follows: Oxide of zinc is of great value. Ordinary dose, two grains, three times a day after meals; maximum dose, 5 grains. It is the best given in form of pills. Nuxvomica is preferable to strychnia. The dose is one-fourth grain, after meals. If the patient be chlorotic, it is well to combine a grain of reduced iron and half a grain sulphate of quinine. Bismuth, in the form of subcarbonate, will often take the place of oxide of zinc. Dose, two grains, after each meal. Bismuth probably aids digestion more than any mineral tonic, and is of use when there is gastric disturbance.

The bromides are serviceable when the nervous system has been irritated; when it is exhausted they do harm. Phosphorus is very useful in most forms of nervous headache. The best results are obtained from dilute phosphoric acid, in doses of thirty drops, largely diluted, three times a day, after eating, or phosphate of zinc, 1-10 grain, in pill, three times. Arsenic, as a nerve tonic, stands next in value to zinc. Dose, five drops of Fowler's solution three times a day, after meals. Galvanism is sometimes

valuable, but by no means a specific. The *constant current* should always be used, being careful to avoid too great intensity, lest amaurosis be produced.

Dr. T. Lauder Brunton, editor of the London *Practitioner*, says: The administration of a brisk purgative, or small doses of epsom salts, three times a day, is a most effectual remedy for frontal headache when associated with constipation; but if the bowels be regular, the morbid processes on which it depends seem to be checked, and the headache, removed even more effectually, by nitro-muriatic acid, diluted, ten drops in a wine-glass of water, or bicarb. soda, ten grains, in water, before meals. If the headache be immediately above the eyebrows, the acid is best; but if it be a little higher up, just where the hair begins, the soda appears to be the most effectual. At the same time that the headache is removed, the feeling of sleepiness and weariness, which frequently leads the patients to complain that they rise up more tired than they lie down, generally disappears.

A writer in the London *Lancet* remarks: At the Middlesex hospital, female patients who have suffered many years from sick headache, evidently of a hereditary character, have been greatly benefitted, if not cured, by the administration of ten minim doses of tincture of Indian hemp, three times daily, between the attacks. This is well worthy of trial in those cases of ever-living, never-dying martyrdom-like suffering.

In headache due to the determination of blood to the head and in fever, the following simple treatment is to be commended: Put a handful of salt into a quart of water, add an ounce of spirits of camphor. Cork the bottle tightly, to prevent the escape of the spirit. Soak a piece of soft cloth with the mixture and apply it to the head; wet the rag fresh as soon as it gets heated.

Soaking the feet in very warm water, in which a spoonful of mustard has been stirred, is also beneficial in drawing the blood from the head.

Two teaspoonfuls of powdered charcoal well stirred in half a glass of water and drunk at once, is a valuable remedy in sick headache from sour stomach, flatulence, etc.

Tincture of *nux vomica* is recommended by Ringer as possessed of real curative powers, when given in drop doses, repeated every five or ten minutes, for eight or ten doses, and then continued at longer intervals, for sick headache, accompanied with

acute gastric catarrh, whether due to error in diet, constipation, or no apparent cause.—*Boston Journal of Chemistry and Canada Medical and Surgical Journal.*

THE BEST TIME FOR ADMINISTERING MEDICINES.

The Midland Medical Miscellany, has an excellent article on this subject, in which it answers the question: Before or after meals? Such is the question often asked of the doctor, but the answer is not always ready. Medicines that are irritating should be given after meals, when the stomach is full, viz.: the salts of copper, iron, zinc, and arsenic, in large doses. Small doses, intended to act on the stomach terminals of the vagi should be given when the organ is empty. Chemical reasons have their influence, thus oxide and nitrate of silver, intended for local action, should appear in the stomach during its period of inactivity, lest at other times chemical reactions destroy the special attributes for which these remedies are prescribed. Iodine and the iodides further illustrate this point. Given on an empty stomach they promptly diffuse into the blood, but if digestion is going on, the acids and starch form products of inferior activity, and thus the purpose which they are intended to subserve is defeated. Substances intended to have alveal action on the mucous membranes, or for prompt diffusion unaltered, are preferably given before meals. The condition of the stomach veins after meals is such as to lessen the activity of diffusion of poisons, and hinders their passage through the liver. It follows that active medicaments in doses near the danger line are more safely administered after meals.

When shall acids and alkalies be given, before or after meals? First as to acids. When acids are prescribed with a view to correct the excessive formation of the acids of the gastric juice, they may be given before meals—as by the law of osmosis they will determine the glandular flow of the alkaline constituents of the blood. The same reasoning would hold good when the alkaline condition of the blood was in excess; osmosis being favored, the acid would reach the blood more readily. Second, as to alkalies. These may be given just before meals, when the acid forming

materials in the blood diffuse into the stomach glands, and after digestion is completed, when the alkalies diffuse directly into the blood, without interference from the contents of the stomach. An alkali taken during the time when the reaction of the stomach juices should be strongly acid, must necessarily hinder, if not arrest, the digestive process for the time being. The metallic salts—notably corrosive sublimate, alcohol, tannin, and some other agents—impair or destroy the ferment, or digestive power of pepsin. Wine that is intended to act as a food is most beneficial when taken slowly during the course of a meal. The objection as regards the ill effects of alcohol on pepsin is not applicable here, except to the stronger spirituous wines in large quantities, for the ordinary medicinal wines have not sufficient alcoholic strength to injure this ferment. Iron, phosphates, cod-liver oil, malt and other similar agents, should, as a rule, go with food through the digestive process, and with the products of digestion enter the blood.—*Jour. Am. Med. Ass'n.*

NEURALGIA.

WE have had some very stubborn cases of neuralgia lately, and have had excellent opportunities for testing the efficacy of many of the vaunted measures in modern use. Large doses of quinine, with an occasional dose of morphia, have succeeded in breaking up the paroxysms in some cases. Strychnia, in 1-32-grain doses, in solution, repeated every three to six hours, has helped us very much. Strychnia should always be given in solution, and I know of no better form for the administration of it than this:

R Tinct. strychnia comp., of American Dispensatory, $\bar{z}$ ss; tinct. cardamon comp., syrup simplex, aa $\bar{z}$ vj. M. S. One teaspoonful every three to six hours. It will be observed that each teaspoonful of this mixture holds in solution about 1-32 of a grain of strychnia. This is a great favorite with us, and will relieve many cases of neuralgia when quinine and morphia fail. But it may be used with quinine and morphia.

The hypodermic use of morphia and atropine has given relief where other heroic measures failed.

R Morphia sulph., gr. $\frac{1}{4}$; atropine, gr., 1-100. M. Use at once.

This should be injected as nearly over the site of the pain as possible. The dose should be repeated about an hour before the expected return of the paroxysm, provided the neuralgia is periodic. If it is not periodic, a repetition of the dose every twelve, twenty-four or thirty-six hours, will generally keep the patient in a comparatively comfortable condition. And this treatment is not merely palliative, but *will actually cure* many cases without other medicine.

Where other means fail, and where the hypodermic use of morphia and atropine combined fail to give permanent relief, *atropine alone*, in toxic doses, is highly recommended.

Our Aftermath.

A HINT TO DENTISTS.—A professional friend informs us that a dentist once complained to him that the greatest annoyance in dentistry is the constant flow of saliva, which interferes with manipulations. He suggested the use of belladonna, explaining its action to him. A patient coming into the office just then the physician, to show the correctness of his statement as to the effects of belladonna on the saliva, injected hypodermically into the patient's arm, a dose of solution of atropia. He says he was nearly as much surprised as the dentist at the complete arrest of the salivary flow; the dentist was in ecstasies, and declared the knowledge was worth a thousand dollars to him!—*Courier-Record of Medicine*.

Great caution as to the size of the dose must be exercised. It would be easy to give a fatal dose.—ED. JOURNAL.

BUFFALO GNATS.—We are neither veterinary surgeon or physician, but the above pestiferous little devils cause so much suffering in this country, that we feel it our duty to do all we can to avert their mischief. The following is a prescription for gnat oil which we heard upon the streets, and have used it on our horses with entire satisfaction: $\mathcal{R}$ Oil of pennyroyal one ounce, oil of cotton seed one gallon; mix and use as liberally as desirable. This mixture is effectual in keeping the gnats away, has no bad odor, is cheap, and above all, does not give the horse pain or remove the hair.—*Editor Mississippi Valley Medical Monthly*.

MACHINE FOR TOOTH-PULLING.—At first sight the machine looks like a set of paper rolls used in the manufacture of paper. At the entrance is a comfortable seat much like a reclining chair, wherein the patient is seated and firmly bound. His mouth is propped open by an ingenious contrivance, and his head laid on one side according as the defective tooth is situated. The machine is one of very intricate and beautiful construction. The tooth is first pulled with lightning celerity, caused by the revolution of a wheel making 781

revolutions per minute. The chair with the patient is then whirled along and another ingenious arrangement divests him of his clothing and gives him a Turkish bath, also a shave, hair cut and shampoo, while at the same time his linen is marked with indelible ink, washed, ironed, folded and done up in a neat brown paper package; his garments are sponged, his boots blacked, finger and toe nails cut and nose wiped, and the happy man is flung out at the rear, passing through a shower of rose water and bay rum, alighting on a pile of cushions, where he finds a colored man waiting to help him dress, and to ask him what'll he have to drink. The great objection to this is that being a labor-saving machine, it will throw a large number out of employment. The same objection was urged against the sewing-machine and the self-binding reaper. It will have a tendency, at any rate, to make good machinists and stationary engineers out of what would otherwise, perhaps, be but indifferent tooth butchers.—*Chicago Inter-Ocean*.

Why cannot writers be truthful and accurate? It is a terrible crime to mislead the young especially. Instead of that wheel making but "781 revolutions a minute," it makes 793 by actual count, timed by a clock in the church steeple. And the package is done up in buff—not "brown paper."

IODIDE OF POTASSIUM IN FRONTAL HEADACHE.—Dr. Haley, in *Australian Medical Journal*, claims that minimum doses of Iodide of potassium are of great service in frontal headache. A two-grain dose dissolved in half a wine glass of water, will often cure a dull headache which is situated over the eyebrow. The action of the drug is quite rapid.—*Medical Summary*.

MENTHOL.—Several years ago there appeared in the American drug market an oil of peppermint, put up in long, narrow, stout glass vials enclosed in pasteboard boxes, decorated with Chinese or Japanese characters. This article was sold under the name of Menthol, or Japanese oil of peppermint. It was recommended as a specific for many nervous affections, met with great favor within a short time, and although not widely known, it found quite an extensive sale. Suddenly, however, and when it seemed that a steady demand was created, it disappeared from the market, and has since, as far as my experience goes, been unobtainable. Seemingly as a substitute for it there has recently been introduced the stearoptene, or crystalline solid, separated by fractional distillation of peppermint oil. It is claimed to be prepared only from Japanese mint, *M. arvensis* var. *purpurascens*. This "Menthol"—the only product to which the name belongs—is an alcohol. Its formula is $C_{10}H_{19}HO$. It is also called mint camphor. It is the active and odorous principle of peppermint oil, is a snow-white, crystalline solid, freely soluble in alcohol, ether, chloroform, carbon disulphide, oleic acid, and most essential oils. When pure, it is not oily, and distills entirely, without decomposition, at $212^{\circ}C$.

From a circular issued by Messrs. Cocking & Co., of Yokohama, it appears that Menthol was first made known in Europe fifteen years ago. Its Japanese name is *Hakka*—*No-Sei* or *Hakka Hari*. It has been used in Japan for nearly two centuries. The consumption of it there is now very large and constantly increasing, it being employed for headache, etc., much as we employ smelling salts. It is most extensively used, however, in the form of a powder, called *Hotun*, consisting of menthol, salep, cloves, crab's eyes, musk, etc.

In England, crystals of menthol, compressed or moulded in cones, have been sold for local use in facial neuralgia and headache, in which it has repeatedly proved of great service. It has antiseptic and germicide properties. Dr. Cutter, of New York, has called attention to its use in epidemic influenza. A convenient way of giving menthol is by inhalation; any simple form of inhaler can be used. It can also be administered by an atomizer, a solution in warm water—gr. iv to f $\frac{3}{4}$ —being used.

Messrs. John Wyeth & Brother, of this city, are now manufacturing neat compressed pencils of menthol, for local application. These are put up in holders of about two inches in length. Dr. J. C. Wilson, of this city, has had made a menthol stick cosmetic, with the active ingredient massed at one end; this is also a convenient form for use.

The proportion of menthol contained in Japanese oil of peppermint is greater by far than that in American or English, amounting in some cases to nearly sixty-six per cent. Many uses for this agent will suggest themselves to physicians, but it has so far been little employed, owing, no doubt to its comparative scarcity and consequent cost; but arrangements are now being made to give it a wide distribution, and in a short time it will take its place as a regular remedial agent.—*By Louis Genosis.*

CORROSIVE SUBLIMATE is rapidly finding its way to the front as a disinfectant. Amongst others, many others we might say, who are now in favor of it is Dr. Kehrler, of Heidelberg. He dissolves 5 grammes in 200 of distilled water, and of this solution uses a small spoonful (10 c. m.) to a litre of water. This strength appears to us to be unnecessarily great; one grain to a pint is quite strong enough for almost any purpose.—*Medical News.*

ON THE USE OF RESORCINE.—*La France Medicale* publishes a brief of the latest researches in the use of this drug, as given in the *Rivista Internazionale di Medicina e Chirurgia*, M. Rhigi bases his views on one hundred observations. He groups resorcine with the aromatics as among the best antiseptics and most powerful antipyretics. Resorcine is well tolerated. It produces, but only for a short time, vertigo and tinnitus aurium, congestion of the face, and, very rarely, a sense of weight or pain in the stomach; nearly always there is abundant perspiration for about an hour. Employed externally it is not caustic, and does not give off any disagreeable odor.

M. Masini uses it in solution in affections of the ear, as a detersive, a slight astringent, an antiseptic, and a caustic, preferable to phenic acid, as the latter is irritating, cauterizing and debilitating to the organism, and has a disagreeable odor; preferable to iodoform, with its disgusting odor, and to boracic acid, which has much less antiseptic and antiputrescent qualities. For an antiseptic solution he used one or two per cent. of resorcine; in granular otitis, for a marked astringent effect, four per cent.; for a strong caustic solution, fifty or sixty per cent.; in otorrhoea, for injections, an aqueous solution of two, three, five per cent.; in parasitic affections, a vaseline ointment of ten per cent.

M. Masini recommends warmly the use of resorcine in ozæna, in powder or as nasal douche. He employs two grms. in 600 grms. of water. If this does not relieve, he uses the powder, and if a radical cure is not effected, great relief to the odor is afforded.—*Journal American Medical Association.*

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"A word fitly spoken is like apples of gold."—SOLOMON.

THE HIGHER EDUCATION.

BY J. D. MOODY, DENTIST.

[Read before the Central Illinois Dental Society.]

WE hear very much of late about "The Higher Education." Our dental journals have been full of it; the educational, theological and other professional periodical literature, teem with it. We see it in our institutions of learning, by the gradual raising of their standard of examinations, both entrance and final. Our civil service agitation is giving a definite value to a knowledge qualification.

The unrest gendered by this struggle after higher intellectual attainment, is noticeable too, in the oft recurring discussions in our dental societies about the merit or demerit of our present standard of our collegiate instruction. At times the war of words wages hot and furious, passion is aroused; estrangement between the faculties of different colleges is brought about; plans for organized effort are frustrated, and individual effort is lost in the great sea of contention, and stands for naught. The reformers,

who are always in advance of and who yet give shape to public sentiment, become disheartened, and the more timid ones prophesy failure. But notwithstanding these discouragements, we are advancing; the outposts of public opinion are, one by one, assailed, gained and held; and thus a progress is made which, though slight, is yet of a permanent character.

In this battle among the giants, where do we, as a profession, stand?

Whatever differences may exist between individual leaders, or whatever the clashing of dissonant views may do to retard, for the time being, this tide of advancement, the fact nevertheless exists that the foremost men of our ranks demand, from the profession at large, that they adapt themselves to this higher educational standard.

By the world at large, we have not been accorded the scientific and intellectual position after which we have been striving; and perhaps for this reason, this state of unrest which promises future progress, is more apparent in our profession than in any other. From the gradual advance that is being made we have reason to hope that, sometime in the future, ours will truly be one of the learned professions; and learned not in the sense that it *professes* a high standard, but in the fact that the rank and file *possess* this high standard.

Did I say we seem to be progressing towards this end? While I believe this to be a fact, and while we are told to possess our souls in patience, there is yet a dark side to the picture, which we cannot, without danger to our hoped for success, fail to look squarely in the face. And it is this that, while my foregoing statements are true of the front rank, the great masses of our profession have neither these attainments themselves, nor do they seem to care for them. This being the case reformers have a Herculean task before them.

Is this indifference real or seeming? Let us see first how it is with the educated portion of our ranks: A large per centage of the students in every graduating class, while being faithful, attentive and successful students, yet pursue their studies no farther than will warrant their obtaining their diplomas. Their every effort seems to be turned in this one direction of passing examinations and getting away. Work given to them, which, while of value to them in after life, and yet counting nothing in

examinations, is shirked. The advice of their superiors in these matters, is held in light esteem. They seem to be wholly absorbed with the ideas of getting away from study and to go to money-making. If in after life the study was resumed, it would, in a measure, atone for these short comings of student life. But how few of them seriously pursue afterwards, either their dental studies or any line of investigation. Of course there are some who do go beyond the course actually required for the sake of the good it will do them in the future, but I believe these to be largely in the minority.

It may be objected, on the part of some, that in the time allotted to the course, only the attainments necessary for passing examinations can possibly be acquired. If this is so, justice to themselves, as well as to the profession they are about to enter, would require the student to go to college with a preparation which would enable him to make the most of the advantages offered. The same holds good with the medical and legal professions. We claim to be a learned profession; and yet our average dental student begins the study of his profession at the same mental point at which the ordinary college student begins but the preparation for the study of some profession. We have neither a preparatory course nor any assurance, hardly even a presumption, that our students will ever be learned men. Is this the fault of our colleges? I trow not. That they are trying to change the present condition of things, and compel a more highly educated class of applicants, is evidenced by the gradual raising of the standard of their entrance examinations. This trouble, of which I have been complaining, does not lie at the doors of our dental colleges. We find it in the seeming indifference, in the great mass of our profession, to the necessity of a higher grade of intellectual culture on the part of the dental student. The average applicant for a place as a dental student would not think of applying for a position with a Garretson, a Kingsley, or a Böedecker. The very consciousness of their ignorance would be too glaring to allow them to do it. Gentlemen, of course you recognize the converse of this proposition. The trouble lies within ourselves. Have I stated the case too strongly? The real fact is, that such a large number of the dentists, especially in the country districts, are such utter ignoramuses, as to give a corresponding tone and coloring to the dental profession at large. The little leaven from the

colleges will be a long time in leavening the whole lump. I use the word "ignoramus," only in a professional and scientific sense. To so great an extent is this, that, in the eyes of the general public, we are professionally and scientifically of one caliber. There is but little discrimination on this point. Of course the dentist having real ability will, in time, have it recognized in his own circle; but the stranger coming to him eyes him askance, knowing full well that the mere title, "dentist," or "doctor," conveys with it no warrant of fitness. Indeed the public have been for so long a time educated in an opposite direction, that they are unfit even to place the proper estimate upon a man's value. Directly the opposite should be the case.

What then, in fact, are our professional attainments? While every part of our work has to do with the laws of physics, how many of us have the slightest conception of the molecular changes going on beneath our touch? How many of us seem to care? It has been years since we have known of the terrible dangers attending the growth and presence of micro-organisms, and yet how many dentists are there who can intelligently discuss a paper on that subject? While our success or failure depends, to so large an extent, upon knowing how to combat with microscopic things, how few of us use that instrument as one of our most valuable aids! While having to do with questions of life and death, we hardly know the first principles of biology. The chemical relations with which we have to do, confront us at every step, yet how many of us understand a chemical formula? While having to do with morbid pathology every day of our lives, how few of us can enter intelligently upon a rational explanation of these morbidic growths, and consequently a rational treatment of the same.

A lecturer before a scientific body presents for our edification an excrescence growing out from a lizard's tail, and triumphantly claims it as a mistake of Nature, and we tender him a note of thanks to cover our inability to gainsay this travesty upon scientific teaching. We handle foils, alloys, plate, and tools, and yet the science of metallurgy is almost beyond our ken. We are dabbling in electricity, and yet how few of us can read with understanding a journal of electrical science? Now these thoughts force themselves upon our attention again and again. What are we going to do about it?

Gentlemen, I have presented this matter in this strong light to first arrest your attention, and secondly to bring your individual responsibility plainly before you. Having done so, may I point out two or three means by which we can and should, to our individual extent, correct in a measure this condition of things?

First, being in the profession throws upon you the obligation to do everything in your power to further its interests. You cannot be an intelligent man nor dentist, without extensive reading. It should be that to be known as a "dentist" would imply public recognition as a learned man. We should be looked up to in every community as authority in scientific matters. It properly belongs to us. Our profession should be a passport into every society. To accept anything short of this, is to lower our position from a profession to a mere trade. *The Scientific American*, *Science*, *Popular Science Monthly*, and kindred journals, should be part of our working force. But in our own line, how meagre is the array of dental works usually found in a dentist's office. You will generally find the dental bible and hymn book, (that's "Harris" and the "Cosmos"), and a chart of the 5th pair of nerves. Even of those who keep up with the current literature, but very few have a dental library worthy the name. The list of dental books is not a very long one. Let us begin by buying one—the one we most need perhaps—read it through carefully, not make a study of it, but carefully enough to know what you will and what you will not find in it. Then get another, do the same with it, master the contents if not the subject matter, and keep on doing so until you have perused every strictly dental work within reach. Include in this list an elementary work on Physiology, Histology, one on Morbid Anatomy, and one on the general practice of medicine. Having done so, and this is within the reach of all, you will be a much better dentist, and a much better citizen. Having gained a knowledge of the contents of your books, they will be referred to again and again, and will contribute much to your ultimate success. I know the dollars come hard, but they come harder when we begin to drop behind. I would urge this plan upon you all. It will place you upon a higher plane of intellectual life. It will compel respect. Now for another practical suggestion: I believe every professional man should have some hobby outside of the strict line of his work. It should be something upon which he could expend all his spare

energy of body and mind, and something to which he could go for recreation. It should follow the bent of his mind, be either mechanical or chemical, in botany, zoölogy, entomology, geology, electricity, or, in fact, anything, only so it will act as a support to the mental powers. Mere physical exercise, such as hunting, gymnastics, etc., is good in its place, but will not accomplish the good which the other will.

Our professional life throws a great strain upon the brain. Natural sleep is all the absolute rest that it needs. A change of brain effort, from bread winning to pastime, brings to light a marvellous provision of nature, to prevent either a stagnation or a total break down. Nature studies are the best. Wearied and perplexed with the cares of a day in the office, well nigh broken down, both in body and in mind, go out for an hour's butterfly hunt, or to look for some rare plant which you believe to be hiding near by, and see how quickly all is changed. The tired muscles are forgotten—in fact are tired no longer—and refreshing sleep follows with its healing virtues. But to receive the most good from this by-play, no thought of gain must enter into it. It must not be made to contribute the value of one cent to your table, nor to your purse. It must be purely a recreation. Neither should this pastime be changed from time to time. All through life, the one hobby should be followed until you are a master in it. By doing this, at the end of your life you will have achieved great good to yourself, and will have been able to contribute much to the sum total of human knowledge. Some of the best work ever done in special lines of research, has been accomplished in after office hours by men active in professional life. We have no right to be selfish. We owe something to society. The man who recognizes this obligation is in better condition, physically and socially in the end, than he who does not. Now if these plans were brought to the attention of every one they might be accepted and acted upon with energy by a few, and in a half hearted manner by many more, but only to be dropped after a short trial from want of a stimulus to continued effort; or they might be carried on for a very long time by some, but in a sort of aimless manner that would defeat the very object to be gained by it.

The average man would not pursue, to as successful a conclusion, any study or work that had for its aim simply recreation or

the general advancement of knowledge, as if something to act as a stimulus were held up before him.

In what manner shall we best provide this needed stimulus? May I offer a suggestion? Create a new dental degree, to be bestowed only upon such as have pursued a prescribed post-graduate course and passed satisfactory examinations in it. The examinations to be taken in one year or in twenty only insisting that they be taken. The post-graduate course to be, scientifically, a very broad one; perhaps insisting that it must bear, directly or indirectly, upon some phase of dental science. Also that the examination for this degree be preceded by one to show that the applicant is a more than ordinarily well informed person, or to have pursued some scientific study, *as* a study, or as a pastime, and to have attained a degree of eminence in it, thus proving his right to belong to a learned profession. I would, in this way, create a sort of dental French academy, a dental academy of sciences, something which it would be an honor to belong to, something really worth striving for.

I use the word post-graduate simply for convenience and in a general sense, not confining it to those who have graduated, but applying it to a course of study outside of and beyond the ordinary collegiate course. The standard of this degree might be secured by law, through the inter-State Board of Examiners, or by inter-collegiate action. I am well aware that the creating of any new degree has been deprecated by many of our best men, and not without good reason. But let me for a moment examine the claims for my proposition. The safety of our profession and of the public alike, requires the dentist to have proper credentials before engaging in practice, showing that he has pursued a proper preparatory study. The easiest and best way to designate that is with the D.D.S. But, practically, that is *all* it means. It confers no dignity. It is simply a ticket of admission. The M. D. for us means no more, only that we can consult with a physician. Neither of these conveys any warrant that its possessor is a learned man, nor that he ever will be. Indeed, we know that the majority of both dental and medical graduates are but of mediocre calibre, and achieve but mediocre success. Of course, in any event, all men would not stand first. There always will be grades of intellect. But the ordinary man *can* occupy a much higher position than he now does. The great reason of so much mediocre talent is, that the stimulus which produced a successful examina-

tion was suddenly withdrawn, and the mind, clogged with care, was not able, unaided, to keep pace with its fellows in the intellectual race. Now place before the student, just as he has successfully passed his preparatory examination, another which even the brightest intellect must be years in attaining, but which we may all hopefully strive after, and you, at once, put a premium upon intellectual effort which will have a value for all time. It will be something worth working for; something, the possession of which, will bring a pardonable pride; something which will unerringly testify that its possessor is a learned man.

A large proportion of the dentists in the country are in no sense learned men, and under present circumstances never will be. They came into the profession from various motives. Some came in by the college door, and many climbed over in other ways. They all came in with hopes for the future, but with the majority, all energy and will-power have been crushed by disappointed hopes, and all projects of future college study blasted by want of funds. Time and money, both are wanting. Unusual expenses cannot be thought of. The tread-mill of routine duty saps all vitality. No race-course has been marked out, no prize is within grasp. The stimulus of enthusiastic competitors is wanting; the mind becomes weary; the energies lag, and life becomes an aimless existence.

This is no fancy picture. It can be verified in a thousand instances. It may be objected, however, that the present race of unlearned dentists will, by virtue of our laws, die out in another generation, and thus a cure be effected of itself. While the condition of things would be bettered, it would be but in a slight degree, for I have shown that the average graduate on entering upon his work, drops all but finger education and in no sense is a learned man. So it always will be. It is only by the untiring efforts of the few, who, endowed by nature with qualities of leadership, can by force of example or precept raise the standard of our profession, and, in a measure, keep the masses up to that standard. But in some such lives as I have indicated, the profession at large can be encouraged to work to a higher plane, and by diligence and perseverance win for themselves a place in the scientific world. We cannot afford to be left behind. Other professions are advancing, even the non-professional ranks are advancing. We, too, must advance or drop our pretensions.

The notes for this paper were prepared during the summer

for this meeting. But since that time I found that in all probability the personnel of the meeting would be different from what I had anticipated.

I have great sympathy for the country dentist, for I am one myself. Very largely he is the victim of unfortunate circumstances. A great many of them would be glad to go higher if they could. One great purpose of our society, in the first place, was to reach out after these, help them to better their condition, bring them into harmony with the spirit of progress, bring them into the State society and make them better men socially and professionally. They do not come into contact with the progressive ones. They have lost all vim, even care not to better themselves, thinking it beyond their grasp. And yet this very class give tone to our profession in the minds of the general public: and it was their friends who well-nigh defeated our present excellent law. I have come in contact with these a great deal, and I believe they can be reached. To such I offer the suggestions in this paper about personal effort. To others I offer the suggestion about a new degree. It may bring a smile of ridicule, but I believe that within it there lies a germ capable of producing much of good to our profession. If there has been a practical paper in any of our journals on a course of reading, such as I have indicated, I have not seen it. I believe it is needed.

Gentlemen, let us catch hold of our boot-straps and see if we cannot solve the problem.

ANTISEPSIS.

BY G. S. JUNKERMAN, M.D., D.D.S.

[Read before the Cincinnati Dental Society, May 13, 1884.]

THE proper understanding of the word antiseptic, involves a knowledge of all that is implied in *sepsis*. The term sepsis means putrefaction: Putrefaction is the splitting up of an organic body into its elements, not elements in the sense of *simple* substances, but bodies which, by their less complex composition, are more tangible.

The term putrefaction is always spoken of in connection with organic bodies, but for sake of illustration the term may also be

applied to inorganic bodies. If we bring together two inorganic substances having affinities for each other, they will, speaking in an analogous sense, be said to have undergone putrefaction. If an organic body be exposed to a ferment, it breaks down, changes its chemical components, and is said to have undergone putrefaction. In both cases the bodies have simply broken down, forming new bodies, in the latter, a ferment in connection with chemical affinity, in the former, chemical affinity alone acting.

It was first held that *sepsis* and putrefaction are identical. All that was required to produce a septic condition of the blood was the absorption of some decomposed matter. It was then noticed that in some cases where the products of decomposition were absorbed in large quantities, less effects were produced than in other cases where very small portions had been absorbed. Where the smaller portions had been absorbed the effects were alarmingly gross, while the effects of a large quantity were amazingly small. Koch was the one who discovered the cause of this seeming paradox, and he divided the condition of absorbed putrefaction into two distinct divisions, and called them *septic poisoning*, and *septic infection*.

Septic poisoning is merely that condition caused by the absorption of the chemical products of putrefaction. It is no more an infective process than the poisoning that would result from the application of arsenic, mercury, or any other inorganic substance to a raw surface. Septic infection, on the other hand, as described by Koch, is that condition which results from the inoculation or absorption of an infinitesimal dose, without the formation of secondary local centers of inflammation. The blood is, however, so completely impregnated with the inoculable material that simply scratching an animal with a pin dipped in the blood, even if it be taken from the center of the heart, will start a like process in the animal. The duration and violence of septic poisoning is proportioned to the amount of decomposed matter originally absorbed. It has no power of multiplication in the blood, and, therefore, unlike septic infection, it spends itself, while septic infection goes on to the destruction of the organism in which it is contained. It has the power of multiplication.

Koch claims that he has found the peculiar bacteria, the red-like bacteria of putrefaction, being the one always found; but when septic infection is present he finds a round bacteria which is

capable of great multiplication, and is of great tenacity of life. The red-like bacteria are very short lived, and are not capable of long endurance and multiplication in the human body. There is no doubt that decomposition favors the formation of these round bacteria by forming a suitable soil for their propagation; but decomposition can exist without them. Whether they can exist without decomposition is still a debatable question. From this can be drawn the conclusion that, if you prevent decomposition, you, at least, take away a great predisposition to septic infection, or the formation of true septic germs. I should here like to draw a plausible inference: Might not abscesses of the alveoli of the maxillary bones be either septically poisoned or septically infected, or in abscesses of long duration, where the periodical return of the disease is marked, in cases where they are said to be hard to cure and baffle the accustomed remedies? I think it is not so much the health of the patient, for healthy, robust people are just as subject to these periodical returns as others. I do not think that it can be attributed to the non-removal of the results of putrefaction. I do not believe that tortuous canals and confined gas are entirely responsible for the trouble, but I do believe that these abscesses, so called, are truly and strictly local septic infections. Putrefaction has been there, but it has simply formed a soil for the growth of a true distinct, disease germ. From this basis we can account for the incurability of its nature. The impossibility of neutralizing the disease by means of present remedies, the inability to remove all the disease, and the infinitesimal amount of disease that it takes to start the process, all tend to but one conclusion. The continuance of this septic process after the extraction of the root is sometimes particularly marked, and resolves itself into distinct symptoms. It is true these symptoms rarely assume a constitutional nature, but that they sometimes do is worthy of thought. The absorbent power of these tissues is not very great owing to the scarcity of their lymphatics. Constitutionality of the disease from this source is, therefore, very sure.

Antisepsis is considered under the heads of surgical, and medical. Both seek the destruction of low organisms. In the former, the prevention of putrefaction is sought for. In the latter, antiseptic treatment is based on the hypothesis, that infectious and contagious diseases are caused by the presence and mul-

tiplication in the body of minute parasites, termed microzymes, microphites, and micrococci. On this assumption special remedies are administered to render the blood and tissues incapable of sustaining the life of these microscopic organisms.

Antiseptics act differently, either *directly* on bodies in which putrefaction is occurring or might occur, forming with them combinations which are not susceptible of the decomposing power of a ferment; or they act *indirectly* by destroying, or otherwise preventing, the development and propagation of the organisms of which the ferment is composed. In this respect antiseptics are distinguished from disinfectants, the action of the latter being directed only towards the neutralizing of gases of known construction which have a peculiar exciting power of special sense.

Since the discovery of the *basilis tuberculosis*, the world has been going wild over the germ theory, so that we might now say there is a *bug for every ill*! This universality of the germ theory has but swelled the list of antiseptics, since drugs which have any effect on a disease are supposed to have it by their antiseptic power.

The number of antiseptics is, therefore, large, but their power of action is widely different. It is stated by an English authority that the only virtue of *astringents* lies in their antiseptic power. So all *escharotics* are but antiseptics, their power of destruction of tissues being simply a circumstance of their parasitocidal action. Corrosives are all antiseptics, their chief characteristics being that they act in small doses. All the mineral, and many of the organic acids, are antiseptic in character,—many gases are antiseptics.

It is obvious from this that the selection of an antiseptic is governed by the condition that is to be treated. In surgical operations, and open wounds, those antiseptics are best suited for the purpose which, acting effectually on the ferment, have little action, and no injurious effect on the parts in which the healing process is going on. Gases, unless in solution, could not be used in these cases. The volatile antiseptics which slowly emit a vapor, have been preferred to those which emit no vapor. This quality of antiseptic would seem of great value in the treatment of deep cavities and narrow canals, such as are found in carious vertebrae and roots of teeth, where the removal of the effects of antiseptics and the remainder of the unused antiseptic is desired.

For external antiseptis any antiseptic may be used. Those which act most violently are preferred, since their action can be tempered by proper dilution. It might be laid down that the more severe the case, the more severe should be the antiseptic. Rapidity of action, efficiency, and the absence of bulk, are qualities highly sought for in severe indications for the antiseptic treatment. This fact has been but lately recognized. The bichloride of mercury, one of the strongest parasitocides, and one of the most violent of corrosives, has fallen into favor from the recognition of this requirement. It is now used by many surgeons for external purposes (1-1000), by oculists, (1-5000).

It is not the object of this paper to discuss specially any one antiseptic, but a few words on this subject may not be out of place.

Bichloride of mercury, being a strong corrosive, can not be used in full strength against any of the soft vascular tissues. A very concentrated solution of this salt cannot be made—five grains in three ounces of water (1-1000) being a saturated solution. Water will, however, hold in suspension considerable more than this. I have succeeded in making twelve grains to three ounces, or four grains to the ounce disappear, but if allowed to stand the excess in the solution will sublime. This is the antiseptic that dental surgeons should use. They can get a suspended solution which will be much stronger than the general surgeon uses. It lacks odor and taste, and is most efficient.

The *creosote doctor* must go. People of refined taste will not permit this drug to be used upon them. I have had people tell me that they had tasted nothing but creosote for three months after using it. This for any one is very bad; but, for an epicurian, positively unbearable. I question the efficiency of the drug anyway. It is a stink that kills a stink; and in this sense even, if an antiseptic, it is also a disinfectant, and is not only distasteful, but unsuitable to be used in the mouth.

The chief antiseptics which are used for external antiseptis, and not much for internal purpose, are chlorine and many of the compounds, chromic and boracic acids, chloride of zinc, carbolic acid, tannic acid, and corrosive sublimate. For internal antiseptis it is obvious that more discrimination must be exercised in the selection of an antiseptic. Corrosives in large doses are impracticable, though, of course, very effective. Escharotics and astringents

gents are greatly dangerous to the gastro-intestinal canal, producing catarrh, ulcers and perforations.

The main thing for a drug to possess is great and rapid diffusibility. Any irritant drug that lies in the intestinal canal for a period of time, without absorption into the general system, is impracticable for internal antiseptis. Corrosive sublimate for internal purposes is not used, since if it be taken in large enough doses its diffusibility is so small and so slow that it will produce death in the organism by corrosion before absorption takes place. Salycilic acid and quinia are of great diffusibility, and for this and their non-irritant qualities, are used very much for internal antiseptis. The rapidity of the elimination from the system of those drugs is a draw-back in their use. They are eliminated so rapidly that we are unable to thoroughly saturate the system unless they are used in large enough doses to produce dangerous toxic effects. The science of internal antiseptis is in its infancy. We look forward for the time when each disease and its germ shall be identical. The human body, which is but the home of these diseases, shall be the vessel into which the remedy must be poured to produce a neutrality of the diseased condition.

Disease and remedy, sepsis and antiseptis, proliferation of the two bringing forth a third which shall be neutral, and like the offspring of the ass and mare, a sterile body.

DO WE ADMINISTER CHLOROFORM SCIENTIFICALLY?

WALTER W. HARRINGTON, CARROLLTON, O.

(Continued from Page 279.)

IN the administration of chloroform the period of the greatest danger is during the early stages of the process. After complete and profound anæsthesia has once been reached it is easy and safe to maintain it by the continued administration of the dilute vapor. Now, if the administration is commenced with an extremely dilute atmosphere, and progressively increased until the desired condition is reached, it allows of the adjustment of the eliminative process to the rate of inhalation, and also allows time for the full establishment of the vital functions in their operation under the changed physiological conditions induced by

anæsthesia.* Dr. Henry M. Lyman gives in the following language a review of the manner in which death takes place under the influence of chloroform: "Death occurs either as a result of over excitement of the nervous apparatus, or as a result of its paralysis. Those cases in which death takes place instantaneously, almost at the commencement of the inhalation, must be assigned to the first class; also those cases in which death suddenly terminates a scene of violent muscular excitement. To the same class also belong those cases in which death follows the first incision. . . It is during the initial stage of nerve excitement that such deaths have occurred, before the blood and tissues have become saturated with (and tolerant of) the anæsthetic."

How often is surprise expressed at the small quantity used in cases that have resulted in death, and the suddenness in which the alarming symptoms were manifested.

"The researches of Paul Best indicate that whenever a relative quantity of *any anæsthetic* has been introduced into the blood, asphyxia will inevitably occur. Lesser degrees of impregnation will produce the phenomena of anæsthesia alone, but as soon as a certain degree of saturation is reached, asphyxia appears. Experimenting on the dog, the animal must breathe an atmosphere charged with the vapor of ether, in the proportion of 37 grammes of ether to 100 litres of air, in order to produce anæsthesia. If the quantity of ether be doubled, so that 74 grammes of ether be mixed with 100 litres of air, the animal will at once die of asphyxia. For each anæsthetic substance the absolute quantity differs; but in every instance the relation between the amount necessary for the production of anæsthesia and the quantity which will cause asphyxia and death is nearly the same—1:2. One hundred litres of air must contain the vapor of 15 grammes of chloroform in order to produce anæsthesia, and of 30 grammes to occasion death by asphyxia."

A knowledge of these facts renders it easy to comprehend the manner in which death has been so often observed as the immediate consequence of a fresh charge of chloroform upon the inhaler. If the patient has been breathing atmosphere charged with chloroform, in the proportion of 25 grammes to 100 litres, only a small addition will be necessary in order to reach the

* Artificial Anæsthesia and Anæsthetics. Page 199.

asphyxiating point, and death may occur suddenly, without accompanying symptoms of excitement, and it is highly probable that to this form of asphyxia may be assigned the majority of those cases in which death is *said* to have been the result of syncope.

“Were it a fact that, in the majority of cases, danger approaches through the heart, it would be impossible to account for the frequent success which has attended artificial respiration, inversion of the body, and faradization of the respiratory muscles, in cases of suspended animation from chloroform.” Thus considered, it becomes evident that the actual structural condition of the heart must necessarily occupy a very much less important position among the causes of death under chloroform than was once supposed. Practical observation and experience, as well as physiological and scientific investigation and reasoning, tend to prove, conclusively, that the dangers to be encountered in the administration of chloroform are not so much from a pathological condition of the heart and system in general, nor from individual susceptibilities to its toxic effects, as from the manner in which it is administered. The surgeon should be as sure of the safety of his patient on the side of anæsthesia as he is in the matter of hemorrhage; and were anæsthesia produced by a gradual and progressive impregnation of the blood with the anæsthetic agent, he could be just as certain of one as of the other. * Sansom says: “If we commence with very small proportions of chloroform, and gradually increase the quantity, we find that the system gradually accommodates itself to the influence; there is no discomfort or terror at the outset, there is no resistance to its influence, and the phenomena resemble those of natural sleep.” Just as persons commencing on minimum doses of opium, arsenic, or alcohol, can gradually increase the quantity of the dose until incredible quantities are taken, so may the system be saturated with chloroform, with an equal immunity from fatal results.

Advantages have been claimed by the admixture of the vapor of chloroform with other vapors, and experience has proved the claim well sustained by fact. There can scarcely be a doubt that by an even blending of the vapors of amyl nitrate and chloroform, the circulation would be better sustained, or

* Chloroform, its action and administration. Page 129.

rather the depressing effects of the chloroform would be modified or counteracted by such a mixture. But, unfortunately, owing to the great difference in their volatility, the successive instead of the combined effects are manifested. Were the succession reversed, *i. e.*, the effects of the chloroform followed by those of the amyl, the result would still be in harmony with the intent of the administrator. As it is their combined effects can be obtained only by evaporating each separately, and mixing the vapors instead of the liquid substances.

The same difficulty presents itself in the mixture of liquid chloroform and ether; and it is only by mixing the vapors, instead of the liquids, that an even and uniform blending of them and their effects can be secured.

The mixture of chloroform with nitrous oxide gas, which, since being born again and christened anew, has become so exceedingly popular, especially with a chosen few of the unterrified, was destined to a life as brief as it was brilliant. Let us take it from its ignominious grave and dissect it. According to the experiments of Krishaber, "The effects of nitrous oxide gas, like chloroform, retards the action of the heart before death; but its effects on that organ are much more depressing than the effect of chloroform. The precipitancy with which the symptoms succeed each other constitutes the principal source of danger, and of the two he considered chloroform the safer. The almost perfect immunity from fatal results that nitrous oxide has enjoyed is owing perhaps more to the rapidity with which the system frees itself from the gas, than from any other one cause. Now, the admixture of chloroform with the gas increases the danger: 1st, because it retards by its anæsthetic effect on the eliminative organs, and the system in general, the rapid elimination of the gas; 2nd, because the specific toxic effects of chloroform are immediately manifested, unless the chloroform is administered simultaneously with a relative quantity of oxygen. It is unnecessary to state that the conditions favorable to the successful administration of nitrous oxide gas, *i. e.*, the entire exclusion of oxygen, are directly opposed to the conditions necessary for the *safe* administration of chloroform. *i. e.*, a plentiful supply of oxygen, and the gradual and progressive saturation of the tissues.

I think the facts, as stated by the various authors, and as

proved by experiments and experience, warrant the conclusion that we do not administer chloroform scientifically, and it remains only to suggest a means by which the errors of the past may be made to serve as guide-boards in the future. Various instruments have been designed, having for their common object an accurate dilution of chloroform vapor in air, and the progressive administration of the same. About the nearest to success was that invented by Mr. Clover, a full description of which can be found in any standard work on anæsthesia. It, however, failed to fully accomplish the object for which it was intended, because, although it provided for a definite dilution of the contents of the rubber bag, there were no means by which the inhalation could be commenced on an extremely dilute atmosphere, and the per cent. of strength accurately and progressively increased (or decreased as occasion might require), until the maximum of strength of the contents of the bag or reservoir was reached. I have designed an apparatus which, while retaining all the advantages of the Clover apparatus, has the additional advantages of greater simplicity in operation, an arrangement by which the per cent. of strength of the vapor being inhaled can be accurately graduated, either increased or decreased, as occasion may require; and a wider range of uses being adapted to the inhalation of gases or vapors, either for medicinal or anæsthetic purposes. My apparatus consists of three essential parts, a reservoir for containing the mixture of vapor and air, an evaporating chamber into which the liquid substance is introduced in measured quantities, to be converted into vapor, and an inhaler, so constructed as to provide for the inhalation coming either from the outside air, or from the air and vapor in the reservoir, so that by the manipulation of a two-way stop-cock, of peculiar construction, the administrator can supply to the patient a vapor of pure air, a vapor of the maximum of strength of contents of the reservoir, or any degree of dilution between the two extremes, knowing accurately, at all times, just what per cent. of vapor is being inhaled at any given time. It would hardly be possible, without the aid of cuts, to give the reader an intelligent idea of the peculiarities of the construction of the instrument, or its mode of operation. I hope at an early day to place it in the hands of the manufacturers, when those interested in the subject can have an opportunity of examining and testing it for themselves.

THE CAUSES OF FAILURE IN DENTAL OPERATIONS.

BY J. R. BELL, D.D.S.

[Read before the Northern Ohio Dental Society.]

SAYS MACBETH: "If we should fail!" His determined wife answers: "We fail! But screw your courage to the sticking place, and we'll *not* fail." Does not Shakespear strike the keynote of success in that one sentence? Success in everything, but more in dentistry than anything else. For dental failures come from lack of sticking-place courage, first and foremost in the patient, and last, but not least, in the operator.

Could we but teach our patients the saving of pain, patience and money, which they would achieve by screwing their courage as soon as they discover decay in their teeth, there would scarcely be such a word known to us as failure. The first important step in any operation is to study its nature and origin. Failures are often caused by too hastily diagnosing the cases, overlooking the age, sex, structure of the teeth, causes and extent of decay, and ability of the patient to endure the operation. Want of courage in the operator to cut away frail walls, weak points, to remove too much or not enough of decayed matter in teeth, is a common cause of failure. Lack of thoroughness in excavating cervical walls of deep or difficult cavities, allowing foreign matter to remain in nerve canals; hobbies in the use of the same filling material for all classes of decay; one style of operating, such as contouring fillings for every case, and the universal treatment of diseased teeth by the same remedy, all these result in failure many times. Eclecticism is the only true method of theory and practice in dentistry. "Prove all things; hold fast that which is good." Neglecting to study carefully the articulation of the teeth, so that proper anchorage can be had at the strongest point in the cavity, is a mistake often seen. An oversight in not preparing the cavity so that difficult points may be made easy of access, thus making a hard task of what might be a simple one. Placing large metallic fillings upon sensitive dentine, without properly protecting the same with some non-conducting, non-irritating material, is the cause, too, of many failures. This practice is, we are sorry to say, too common, and is not excusable in *any* case. And is not permanently filling teeth too soon after

treatment for peridontitis, alveolar abscess, exposed or partially exposed pulps, disastrous? producing unnecessary irritation, thus preventing nature's reparative process. Insufficient separation of the teeth to make approximal cavities accessible for thorough introduction of gold, or other filling material; also the use of small pointed pluggers to impact the gold to the edge of the cavity, is, we consider, bad practice.

The too free use of amalgam is, we believe, the most common mistake among dentists. It is not only unsafe on account of the poisonous effects of the mercury with which it is prepared, and the shrinkage it undergoes in process of crystalization, but it lowers the *standard* of dentistry. As a rule it promotes laziness, unfitting the operator for fine gold work. There are very many unnecessary causes for dental failures, among them might be mentioned unfinished fillings, where projecting edges are left either at the cervical border, or some place about the cavity a little difficult of access, a point perhaps where a few moments time would prevent lodgment of foreign matter, and save the tooth from future decay. Then we see cases where the other extreme is adopted, and instead of leaving the cavity filled flush, for some unknown reason the file, disk or emery strip has been used, and the enamel cut away, exposing the dentine, a condition that might serve in hard teeth, but in case they were soft and chalky, you all know the result. Again, failures are caused by leaving fillings in an unnatural condition, so that teeth are not self-cleansing, as they should be. Hurrying operations is often the cause of slighting some little but important point, either in preparation of the cavity, introduction of gold, or finishing the same. Then there are failures from operations made for females during menstrual periods. It is a fact, too, that a few days, either before or after this sickness, some are very susceptible to the effects of work upon their teeth; the preparation of a small cavity would endanger the tooth, which at other times would not be noticed. While we presume this is understood by dentists generally, we do not think enough attention is given the subject. Advice regarding the care of the teeth of the mother during pregnancy, the importance of proper nourishment to supply the osseous system during and after gestation, is a subject worth considering, and one which when neglected will cause the best operations to fail. It is not our purpose to advance any theory

or practice as preventive against failure. We suggest, however, that it would be wise to impart all the practical knowledge to our patients possible, regarding the care of the teeth.

Then, to insure each case against failure, all deposits should be removed, the gums made healthy, instructions given as to the value of toothpicks, brushes, and the injurious effects of nostrums, or any preparation in shape of powder, and more particularly the importance of a visit to the dentist at least every three or six months. If our work has been thoroughly done, and each case, as it is discussed, taught the importance of such care, we can congratulate ourselves that we have done our duty at least.

IS IT HONEST?

BY L. P. HASKELL, CHICAGO.

Yes, *is* it honest to put in the mouth an artificial denture, that cannot be repaired at much less expense than the making of a new one?

There has been such work made in the past and abandoned, and now it is coming to the front again, *via* the Atlantic, from England, and is introduced there for the purpose of selling "gas furnaces."

What is it? Why it is what is known as "Continuous Gum Facings," or Continuous Gum attached to a rubber plate.

Twenty years ago Dr. John C. Fuller, of this city, took out a patent for such an "invention," as he claimed. But it was found that many dentists, east and west, had been using the same thing at least six years, and had abandoned it as worthless. Dr. Goldey, of Oswego, said he had found it, "like the Devil's tail, painted blue, more ornamental than useful."

The most serious objection to it is, that in order to replace a broken tooth, the rubber plate must be destroyed, the Continuous Gum repaired, and then a new rubber plate made! Perhaps the dentist making the plate might, for the sake of his reputation, be willing to do it for a small compensation; but, what if the patient is beyond his reach, or he is dead, how then? Dentists

are not willing to make good the mistakes of others, for little or nothing.

It is a very pretty thing to look at, but it is not an honest thing to do.

Correspondence.

"I charge you that this epistle be read."

NORTHERN OHIO DENTAL SOCIETY.

Editor Ohio State Journal:

THE twenty-fifth annual meeting of the Northern Ohio Dental Association began in the finely appointed assembly room of the Board of Education, on Euclid Avenue, in the city of Cleveland, at 10:30 A. M., May 13th, 1884, and continued two days.

There was a good attendance of members, both active and honorary, as well as visitors from adjoining States. The President, Dr. Gale French of Pittsburg, Pa., called the meeting to order promptly at the hour. The morning session was, in the main, taken up in calling the roll, hearing reports of the several standing committees, and other miscellaneous business. The time fixed for holding the sessions after the first morning, was from 9 to 12 M., and from 2 to 5, and 7:30 P. M., to adjournment. Letters of regret were read from Dr. Geo. H. Thomas, of Detroit, Mich., and Dr. E. J. Waye.

The President then announced the first subject on the programme for discussion in order, viz.: Causes of failure in dental operations. But the time for adjournment being so close at hand, the consideration of the subject was postponed until after recess. On assembling in the afternoon, Drs. J. R. Bell, and W. P. Horton, of Cleveland, and B. F. Gibbons of Youngstown, read papers upon the first subject, after which a very interesting and lively discussion ensued, participated in by most present, and was kept up to the time for adjournment.

At the opening of the evening session, the first subject was passed, and the second taken up, viz.: Materials for filling teeth,

their relative value and how to use them. Upon this topic there were no papers. But the remarks by members and visitors were spirited, interesting and instructive to the close of the session.

May 14th, 9 A. M., the meeting was called to order by the President, Dr. French.

During the consideration of miscellaneous business Dr. J. F. Siddall read a poem on anæsthetics. Dr. Horton offered a resolution of thanks to the Board of Education for the use of their assembly room, which was adopted. Discussion was continued on the second subject to 10 A. M., the time fixed for the election of officers, which resulted in the choice for President, of Dr. Ira Brown, of Cleveland; Vice President, Dr. D. Gibbons, Warren; Corresponding Secretary, Dr. F. H. Harvey, Cleveland; Recording Secretary, Dr. Geo. H. Wilson, Painesville; Treasurer, Dr. Chas. Buffett, Cleveland.

Delegates to the American Dental Association, which meets the first week in August next, at Saratoga Springs, Drs. Gale French, Ira Brown, Phillip A. Keese, Geo. H. Wilson, E. J. Waye, J. W. Lyder, F. S. Whitslar, and C. R. Butler. There was a manifest desire on the part of members that this Society should be fully represented at the next meeting of the American Dental Association; and Dr. Bell was appointed a committee to confer with the railroad officials, with a view to obtaining special rates for all who desire to attend. The second subject was passed, and the consideration of the third entered upon, viz.: Prosthetic dentistry, including artificial crowns. Although an old and hackneyed subject, very many good, and some new and valuable suggestions were made upon it. At two o'clock P. M., the gavel of President French called the members to order, and the President elect, Dr. Ira Brown, was duly installed by a formal introduction by the chairman of a special committee appointed for that purpose. Dr. B. thanked the members for the honor conferred on him in a very brief, but neatly worded speech, at the close of which, Dr. Gale French, the retiring President, delivered a carefully prepared address, giving the history, chronologically of this Society, from its organization to the present time, which was received with hearty applause by those present.

President Brown here announced the third subject, as still in order; and after remarks by several members, Dr. Corydon Palmer exhibited some splendidly prepared colored drawings, show-

ing his method of constructing and antagonizing partial and full artificial dentures, which ought to be obtained by some of our enterprising book makers, and published for the benefit of the profession. There were interesting and instructive remarks, by several members, on the benefits to be derived by using the Coffin split fixture, for reducing irregularities. The third subject was here passed, and the fourth order on the programme declared before the Society.

At this point, the special committee on the demise of Dr. B. F. Robinson, asked and obtained leave to report as follows:

WHEREAS, Dr. B. Robinson, one of the charter members of this Northern* Ohio Dental Association, having earnestly and faithfully fulfilled his mission, has passed away to the bourne from which no traveler returns; therefore

Resolved, That in his decease, the Association has sustained the loss of a valuable and esteemed member, one whose memory will be cherished with feelings of the kindest respect, and that this expression of our regard be placed on record, and a copy sent to the widow of the deceased.

F. S. WHITSLAR,
L. BUFFETT,
J. W. LYDER,
Committee.

The report was adopted, and the Secretary was directed to send a copy to the widow of the deceased.

The President here announced the executive committee as follows: Drs. Whitslar and Whiteside, of Youngstown, and Barnes of Cleveland. The Society adjourned to meet at Youngstown, on the second Tuesday of June, 1885.

W. P. HORTON,
On behalf of Publication Committee.

ATROPINE vs. CARBOLIC ACID.—Prof. Bartholow thinks that the physiological antagonism of atropine to carbolic acid, so valuable in poisoning by the latter, is not widely enough known. The reverse antagonism does not exist. In carbolic acid poisoning atropine should be given hypodermically.—*Col. & Clin. Rec.*

Editor's Specials.

"Write the Vision and make it plain."

THE PHYSIOLOGICAL BATTLE.

LIFE is a continuous warfare. We constantly store up within us that which is capable of destroying us under circumstances to render it active. After all that can be said, much, if not all of vital force, is but a correlation from chemical force. Affinity builds and destroys. Our bodies are laid up, particle after particle, organ after organ, in strict obedience to chemical law; and they are taken down, piece by piece, in subjection to the same unchangeable law. Unchangeable, or to be changed only when the modifying circumstances are changed. With sameness of conditions, action and result will be the same.

Oxygen is the great destroyer, the insatiate ghoul that, like the daughters of the horse-leech, still cries, give! give! Yet its presence is essential to the formation and structure of our bodies, and its action is necessary to the manifestation of vital phenomena.

This element is in our bodies under three different and distinct conditions, depending on the office or function it is expected to fulfill. It is an essential ingredient of the tissues of our bodies, just as are carbon, nitrogen, etc. Then it occupies two distinct conditions in the blood. It is *active* in combination with the iron in the blood, and the oxygen thus associated is that which maintains, or sustains the functions of organic life; and here its action is wholly independent of, and above the control of the will-power. Its action here is interesting to observe, and it can be readily demonstrated that without the iron in the blood corpuscles, it could not be manifested.

Let us think of the behavior of these elements in relation to each other in the laboratory, and then, perhaps, we can better understand their influence on vital functions. If iron receives its first degree of oxidation in the presence of carbonic acid, the acid at once combines with the oxide, forming carbonate of iron. But in the presence of free oxygen, this salt is not permanent; for the oxygen, in spite of the combination, oxidizes the iron a step further, giving what is often called the sesquioxide of iron.

But as carbonic acid has no affinity for this oxide, it cannot combine with it, and is hence set free. If brought in contact with oxidizable substances, the sesquioxide gives oxygen to them, and if carbonic acid is again present, it takes the protoxide of iron as fast as it is formed by the reduction of the higher oxide.

Now let us trace oxidized iron around with the circulating current, for convenience starting at the left ventricle of the heart. By contraction of this the blood is sent into the aorta, and thence throughout the system. The iron here is in a state of sesquioxide—oxidized to the degree of one and a-half. The blood goes to the capillaries, depositing nutrient material of course; but the iron is giving off a part of its oxygen. When carbon is oxidized in the blood, as elsewhere, the result is carbonic acid. This takes the reduced oxide of iron as fast as it is formed, and by the time the blood gets back to the right auricle of the heart, the iron is carbonized—that is, it is in combination with carbonic acid, which can unite only with its protoxide. From the auricle it is driven into the ventricle, and thence to the lungs. The residual air has free oxygen; and atmospheric air, with its free oxygen, is steadily inhaled. The gases here all obey the law of gaseous diffusion; and when the chest is filled with air, the air-cells are expanded—this expansion makes pressure, and greatly increases the membranous surface, facilitating gaseous exchange. Free oxygen passes through the membrane, gives the iron its higher degree of oxidation, and thus forces the carbonic acid into freedom, when it passes through the membrane into the air-cells, and is exhaled. The transfer of gases is taking place all the time, but it is greatly increased when the membrane is stretched by an inhalation. Thus we see there is no mystery in getting free oxygen into the blood, and carbonic acid out; nor is there any necessity for the use of the terms *endosmose* and *exosmose*, and the like, which serve only to confuse the student. And it is probable that this oxygen, which combines directly with the iron, gives the force necessary to carry on the organic functions. And thus we see the important part played by iron; and we see, too, the importance of having these organic functions placed beyond the control of the will.

But oxygen is placed in the blood on still another principle, and for a still different, if not a higher purpose. We allude to the process of storing it in the red corpuscles for the purposes of

animal life, that its action may develop the force used in voluntary effort of mind or body. Would it not seem that the phosphorized fat in the red corpuscles would have a stronger affinity for oxygen than iron has? If we had the power to make combinations at will, and desired to make a most thoroughly combustible substance, we would probably adopt the formula of this phosphorized fat found in the red corpuscles; and yet, in the function of respiration, oxygen is stored in the red corpuscles, in, upon, and around it, as if it were, of all things known, the one that cannot be burned. These facts render it self-evident that the oxygen thus stored is not in its active state, but is passive. The passive oxygen, thus deposited for future use, in such decided contrast with that in combination with the iron of the blood, we have elsewhere called "the oxygen of reserve," which we thought a very convenient term; while that concerned in developing the forces of organic life, we have called the "oxygen in action;" but, as a critic did not seem to like the terms, we have not insisted on their use.

This oxygen stored in the corpuscle, remains passive, in obedience to something; and we presume the force that so holds it is called vitality. Passive oxygen may be rendered active by various means. An electric spark, heat, the power of the will (when stored in the corpuscles), and the withdrawal or removal of the force holding it passive.

In life, then, this potent element is evenly and minutely distributed throughout the body. A man who considered himself in very great danger, said, "There is but a step between me and death." But think of the result, should the passive oxygen, stored within us, be at once made active. But it will not be necessary to die of fright; for vitality and will-power are good drivers, and are generally able to "hold their horses." But when vital force lets go, how long does it take this oxygen to become active and begin its work? Probably about as long as it takes light to get in after the door is opened. And how long does it take it to get to its place of business—to material on which to work? We have seen that it is there ready, while vital force is still active; and often it begins its work while there is some vitality, but too feeble to resist the force of chemical affinity, a phenomenon analogous to a death by *delirium tremens*, in which the demons seem to seize the spirit, and begin their torments before the breath has left the bloated carcass of the victim.

We think that all recognize the fact that putrefaction begins, under ordinary conditions, as soon as death takes place; and, as referred to above, it may begin even before vitality is gone, when this is too feeble to resist the power of putrefying agencies. And perhaps all agree that chemical action and the influence of micro-organisms both take part in carrying on and completing the process of putrefaction; and it is possible, and even probable, that they mutually aid in developing and rendering each other active. In comminuting, or subdividing the devitalized material, the germs cause a more extensive surface exposure; and extent of surface is one of the circumstances which modify chemical action. On the other hand, chemical action, such as oxidation, doubtless brings about a condition of the dead matter favorable to germ development. Thus far, we think, there is little or no difference of opinion; but which is the primary factor in the process of putrefaction is where the dispute begins. Does the chemical action develop, or prepare the way for the germs? Or do the germs bring about a condition that allows chemical action? We believe this is about a fair statement of the case.

One thing may be laid down as a premise, and it is a mere truism, and that is, that matter cannot get away from the influence of chemical force. Could it reach the utmost boundary of material existence, chemistry is the only science that, in its nature, can reach out and examine the space beyond and tell us whether or not matter is there. Besides this science, only omniscience can answer the question.

And further, though chemical agents, specimens of matter, on allotropic principles, may be rendered passive, yet chemical affinity is never passive—always active, always ready to act in obedience to its own nature and that of the material substances within the range of its influence. This being the case, bear in mind that the organic matter of the body is oxidizable, and that, as death has occurred, the oxygen in the body is no longer held passive by vitality, and you will readily recognize the fact that the oxygen stored in the red corpuscles, or wherever it may be, must begin its action, on the tissues in contact with it, the very instant that vitality is lost, or is reduced below the force of affinity. Can the germs begin any sooner? All who have clear thoughts about chemical action find no call for a germ theory to account for the rapid destruction of the lifeless body by putrefaction. True, the germs hurry the process of complete disinte-

gration; and so do maggots, so do hogs, dogs, turkey-buzzards, and other animals not choice as to the odor of their viands. But the beautiful buzzard comes to the feast after putrefaction has prepared the delicious dish; and it is quite probable that he is not the only organic guest a little behind time.

In naming this article, the battle reference is to the contest between vitality and affinity; and there is no allusion to a controversy between parties holding different theories.

THE SALT OF SALTS.

PHOSPHATE OF LIME IN RACHITIS, ETC.

So far back as 1860, Dusart established the fact, in a valuable paper on "Medical Inanition" (*Arch. Gen. de Med. et de Chir.*), that the presence of phosphate of lime is necessary in the transformation of the albumen of aliments into cells and tissues; that the vitality and heat in animals are in proportion to the amount of calcareous phosphate they possess, and that when deficient in it, the tissues absorb from the skeleton the phosphate of lime which is indispensable to their existence, and draw from the fatty tissues the hydro-carbonic elements when these are deficient in food. The conclusion to be drawn from these facts is that calcareous phosphates are indispensable to animal life. If, then, from whatever cause, a waste occurs, disorders will follow, and restoration becomes urgent. Many years ago Piorry recommended phosphate of lime in pregnancy, rachitis, caries, osteomalacia, pneumo-phymatosis, etc., to assist the cretaceous transformation of the tubercles. It can be given with benefit to young children during dentition, in the form of lacto-phosphate, or of chloridic-phosphate, in doses of from one and a-half to fifteen and a-half grains. Moriès recommends it for wet-nurses in poor and populous towns, to prevent cacoehymia and rachitis in infants. Gosselin and Milne Edwards (*Comptes Rendus Acad. des Sc.*, 1856) have, by experimentation and clinical observations, shown its value in treatment of fractures in the bones to be indispensable. Limbs broken in dogs of the same age and weight were put under the same régime, only phosphate of lime was mixed with the food of a number, in which cases the fracture invariably healed more speedily than in the others. In the

former cases, when the animals were destroyed, ossification was seen to be far advanced, while in the latter but a very slight development was observed. Milk contains a large proportion of phosphate of lime. It thus follows that if a child be deprived of it, rachitis may be the result, especially if there is a predisposition to that disease. The phosphate of lime and milk are clearly indicated as a remedy in such a case. By the use of them Blace and Riaut have obtained excellent results in similar circumstances. The usual treatment of scrofula and Pott's disease is a good, nourishing diet, exercise, sea and iron baths, quinine and cod-liver oil, but phosphate of lime combined with the *iodides* (?) will be found an invaluable auxilliary in these complaints. It is thus very useful in phthisis, in which it may assist in the cretaceous transformation of the tubercles, and will counteract defective nutrition and an excessive elimination in the urine of the phosphate of lime in the system. It will also act against abnormal sweating and intestinal secretions. We may add that in virtue of the phosphorus it contains, phosphate of lime will tend to strengthen the nervous system.—*Medical Press*.

Dentists, as well as physicians, are hard to awaken to the importance of this salt in nutrition. We were using it as suggested above, before we turned our attention to dentistry, and when we settled down on the specialty, we found it called for almost as often as before.

A very important thought in the above paper is found near its beginning, worded thus- "The presence of phosphate of lime is necessary to the transformation of the albumen of the aliments into cells and tissues." Nor is this of much less importance: "The vitality and heat in animals are in proportion to the amount of calcareous phosphate they possess, and that, when deficient in it, the tissues absorb from the skeleton the phosphate of lime, which is indispensable to their existence."

In some states of the human constitution, we find such an impoverished condition of the bony tissues, that they are exceedingly brittle; and, if fractured, they are difficult to heal, a cartilaginous, instead of an osseous, union sometimes taking place. And whatever condition impoverishes the bones, has the same effect on the teeth; though changes in the structure of the teeth take place more slowly than in bones, and a restoration to the normal state is not so rapid.

After gestation and prolonged lactation, we have seen the teeth so soft that, in cutting with an excavator, it was difficult to tell when the instrument had reached the undecayed dentine. It has been our habit in such cases to prescribe the phosphate, generally in the shape of foods abounding in it, as lean beef, cracked wheat, whole-grain flour, the meat of domestic fowls, etc.; but often we have suggested the addition of the pure salt to food. For children, we suggest a pleasant syrup of the lactophosphate of lime, as it is not difficult to induce them to take it in that form.

It is so often claimed that the salt is nearly inert as a medicine, on account of its insolubility, that "line upon line" is necessary in counteracting the error. Those who speak of its insolubility, as Pereira and others, usually, in the same paragraph, tell us that it is highly soluble in hydrochloric, acetic, and carbonic acids, substances nearly always found in the stomach. The experiments on the broken limbs of dogs, described in the article, are very instructive, and settle the question of insolubility.

If the article and our remarks awake attention we shall be gratified.

IS THIS A DENTAL SUBJECT?

THE question refers to hydrophobia; and as it is supposed to be usually caused by the insertion of *teeth*, it would seem to bear some relation to dentistry. This reasoning is not more remote than that which gives the Mad-River Valley Dental Society some of its best members. Mad river feeds the Miami Canal, this empties at Cincinnati, therefore, the dentists of Cincinnati pertain to the Mad river valley. And they may be thankful that we don't say, to the valley of the *Ruckawa*, the Indian name of the river, recently revived in the naming of a new post office.

But to return to our broiled lamb, *alias* mutton, if a case of hydrophobia should occur, we would be glad to hear of the application of gastric juice to the wound, say with a hypodermic instrument. It is quite probable that the poison of each venomous reptile has its legitimate and efficient antidote; but with many, as the cobra, the action of the poison is so nearly instantaneous, that there is not time for remedial action. With the poi-

son of hydrophobia, however, the case is different, as days always elapse, and sometimes weeks, or even months, before its dreaded influence is manifested. This allows time for the action of antidotes; and if any exist, it is desirable that they be known and recognized, as under present circumstances, the disease is a reproach to the profession.

A difficulty lies in the way of research for antidotes; and that rests on the fact that, of those bitten by rabid animals, only a few contract hydrophobia, even though nothing is done. This renders it easy to give a remedial reputation to any drug, or weed, or simple charm. Early in the present century an empiric in western Pennsylvania had a great reputation for curing hydrophobia. Our father saw a poor bitten victim taken to him, who was writhing under the agonies of delirium tremens, and learned that he was dosed with a decoction of "chickweed," and kept till he became sober. To the day of his death, our father tried to be useful by distributing the seeds of the said "chickweed." We have no doubt the decoction of any harmless weed would have been quite as efficient.

But if gastric juice destroys the rabid poison by actual contact, may it not be possible to reach the same results by other digestive agencies, such as pepsin, infusion of paw-paw, etc.?

Fortunately the disease is not common. One will die of it, and the whole country will be thrilled with sympathy; while if *six* die in the same city, the same hour, with the more fearful *delirium tremens*, the news disturbs no one.

THE HYPODERMIC INJECTION OF GASTRIC JUICE AS A REMEDY FOR HYDROPHOBIA.

To the Editor of the Clinic:

DEAR SIR:—As hydrophobia has become alarmingly prevalent within the last few years, I wish to suggest as a remedy to be tried, which, so far as my limited knowledge extends, has not yet been tried or suggested, except in the instance to be related.

The caption of this article at once explains what the agent is, and I base my theory on the following circumstances:

In 1871, while a medical student, and temporarily residing in Baton Rouge, La., I was bitten in the calf of my right leg by a mongrel canine, which presented all the appearances of being affected with rabies, viz.: listless gait, frothy mouth, eyes injected,

etc. The animal was running across my path, and I supposed he would have made way for me; but not so. As we met he seized, as mentioned, inflicting a severe wound, and continued on his course. I immediately went into the drug store of Messrs. B. A. Day & Co., in which I was employed at the time as dispensing clerk, and cauterized the wound with hydrochloric acid. The dog was shortly afterward killed, but fortunately in one sense, and unfortunately in another, had not bitten any one else, it being early in the morning and but few people on the street.

I was very much alarmed about the matter, and on the principle that the poison from the fangs of the cobra, the rattlesnake, and numerous other venomous serpents, insects, etc.; also many of the vegetable poisons of the wild tribes of Africa and South America being only poisonous when injected directly into the circulation, and perfectly inert when taken into the stomach, it occurred to me that probably the secretion of the gastric intestinal track, by chemolysis, decomposed or neutralized those substances in some manner as to cause them to become inert when ingested. On this hypothesis I made a gastric fistula in a rabbit the night following, and obtained a small quantity of gastric juice, which I applied to the quite extensive raw and denuded surface, the acid having increased the dimension of the original wound made by the dog's teeth.

Seven years have elapsed since the occurrence and, as yet, I have not become infected, but, according to the best authorities, several years must elapse before I can consider myself safe.

I do not say the dog was rabid, but he presented most markedly all the appearances of it. I would like to see the remedy tried as a therapeutic agent in the next case. It can do no more than increase the fluidity of the blood, as the physiological action of the secretion mentioned is principally to dissolve the albuminous articles of food, and the blood's main constituent is albumen.

I think the treatment as rational as any, as all the modes previously adopted have been almost wholly experimental, and have been unattended with success. Respectfully,

ALFRED V. FORGEY, M.D.

PIETY is like the diamond, not found everywhere.

HOME LIFE.

HUMAN happiness in this life culminates in a good home. About the fireside where love and kindness dwell are reared the men and women that make life a benison. From every well regulated home spring wholesome influences that we carry with us to the grave. Who of us that have known good homes in childhood can look back at the old fireside, radiant with sweet faces and merriment, without a thrill of pleasure?

On the street and in our business relations we are all counterfeits, more or less; at home we act out our natural selves. Affectation is there laid aside, and we stand revealed—amiable or irritable, kindly or affectionate, or the reverse. After a selfish man has crossed his threshold the littleness and pettishness of his nature, studiously concealed from the world at large, come to the surface. In order to know a person intimately one must study his home-life and see him often at his fireside.

Home comforts and joys are made up of so many apparently little things that it is difficult to picture them in a way that does them justice. Some one has said that trifles make up the sum of human happiness, and we believe this to be true. Great events, triumphs that we have longed for and toiled to attain, come but seldom, while the long intervals between them are made up of happenings so trivial as scarcely to be worth recording, yet fraught with quiet happiness to our home life.

It is singular how narrow and petty some of us manage to make our lives. Our homes may be models of beauty; we may have fine paintings, and rich furniture and carpets; we may entertain our friends sumptuously; yet there is something lacking that makes all this seem vain and empty—the warmth and light such as only love can lend to vivify a home. The heart requires more than elegance to make it happy. If mother is absorbed in dress and society, and father gives all his time to business and the accumulation of money, the children must look elsewhere for those little attentions and kindnesses such as a child longs for from its parents.

“To-day,” says Carlyle, “is a king in disguise.” Who will say that the sad-faced old philosopher is wrong? Few of us see the beauties or grasp the benefits of the present. In reaching out

and struggling for some future prize we trample under foot many a present blessing, and overlook many an opportunity of infusing sunshine into our homes and the lives about us. He who habitually brings home with him at night a smiling face and cheerful greeting, is more of a benefactor than he imagines. Cheerfulness left out, home is the dullest place in the world. The wisest of us are content to take to-day at its worth, and are not over-anxious about the future.

Inasmuch as dentists, more than any other class of men, at regular periods, reach their homes in a careworn and irritable state of mind, the above brief article may do them good. We regard it as within the province of the journalist to promote the comfort, happiness and longevity of his readers, as really to extend the field of their attainments in useful knowledge. Much of the day the dentist is bending over and breathing in a pestilential atmosphere, rendered poisonous by the exhalations from the skin and mucous membranes of his patients. Willing or unwilling, he must endure the poisoning, if he expects to make a living at his chair. A brain supplied only with blood so poisoned, is apt to be irritable, and to cause its possessor to be whimsical and cross. He generally manages, however, to keep up appearances in the presence of his patients, through fear, if not from a higher motive. Were he as crabbed with his afternoon patrons as I have seen him with his patient wife and frolicsome babes, their Herculean fathers, or big, burly brothers, would trounce him for his ill manners; and they would serve him aright. But the cowardly curmudgeon that this condition makes of him at times, does not hesitate to wound the most refined feelings of his self-denying wife, simply because he has no fear of punishment, wholly unmindful of the fact that when she, a bright, happy girl, promised to be the mother of his yet unborn babes, she placed him under the highest and most sacred of earthly obligations, to do all that is possible for a man to do to promote her joy and happiness.

And though these office annoyances render him irritable, they do not paralyze his will. He can still use his judgment, and should do so, and make his family happy by pretending to be so himself; for in the effort, he will find joy contagious, and he will soon be joyous and *rested*, simply because his family is.

Societies.

"Wherewith one may edify another."

SOUTHERN DENTAL ASSOCIATION.

[Met in Lexington, Ky., 2:30 P.M., in Y. M. C. A. Rooms, May 6th, 1884]

(REPORTED FOR THE JOURNAL.)

MEETING called to order by the President, J. H. McKELLOPS, of St. Louis.

PROF. J. TAFT invoked a Divine blessing upon the meeting.

PRESIDENT McKELLOPS addressed the meeting, detailing the benefits of the society, in advancing the standard of dentistry, and social enjoyment.

DR. RAWLS, of Lexington, on behalf of the Kentucky State Dental Society, welcomed the Southern Society to their State and the city. The doctor gave a historical sketch of Lexington, with its educational and manufacturing interests—the home of the beloved Henry Clay—a land favored of God for beauty of scenery; endowed with fertility of soil, fine stock, beautiful women, and brave men.

After the usual routine business, Prof. R. F. WINDER, of Baltimore, read a valuable paper on the subject of "Dental Education."

The paper advocated a system of teaching, so as to preserve the individuality or natural genius of the student, instead of the universal, non-essential, *effete* curriculum of our universities and colleges, and especially the question of conferring degrees for the number of years spent in the said school, without regard to the *practical* development of the faculties of the mind; and too frequently this *effete* training burthens the mind, breaks down the physical organization, and death or a meager existence finishes their days.

DR. TAFT: I have no doubt but what all present will give their approval to the main points in this paper. I believe the paper deprecates the high educational attainments where they destroy the individuality of the student; and by the time the person receives the degree of B.S., he or she is unfitted for the practical essentials in a useful education.

The paper does not indicate how far the student should proceed, as a dental student, in the studies of anatomy, physiology, pathology, or chemistry. We are not told what we must know. We must concede that a student ought to know the origin of our nomenclature of medical terms; and if he does not know of the origin of terms, he is at sea, and does not have a foundation for a true professional education. The student should be acquainted with the languages of the past, from which our language is made, so the terms can be readily retained, and a true application of the meaning of the same. We also must admit that too many of the members of our profession are ignorant of the common rules of language.

The paper refers to the esthetic: and we must admit that we do not require that degree of attainments, or graces, including general literature, travel, etc..

DR. SMITH: I approve of the general points in the paper, but to some of them I object. This may be the iron age.

It is the man of the broadest culture that has the widest influence; while the ignorant have not such advantages. I would recognize the genius of the student, if he had any, but too often our students are just what we make them.

DR. TAPT: We all admit that the broadest culture is advisable; but we will not admit that raking up money is the object of life.

DR. PATRICK, Belleville, Ill.: In this subject I find so much of thought, I don't know where to begin.

We all know that when we look over the past, we do not find any specialties in the past; but as the race develops specialties and individuality grow up with the development. Dentistry is a specialty of medicine, whether medicine wants it or not. Medicine is a specialty; medicine is not a science, neither is dentistry, but a result of science. If it was not, there would not be any pathies and isms. Medicine has its specialties, such as pathology, chemistry, physiology, etc. If the physician wants a chemical analysis, he goes to the chemist. If he has any trouble with the eye, he goes to the oculist.

Richard Owen was not a dentist; but he was the acknowledged authority on the human teeth. He knew comparative anatomy—the structure of the teeth, from a cockroach up; when they are erupted, and when lost.

The average physician is not better educated than the average dentist. The text-books are simply made out of the other text-books, and follow each other. My idea of education is that the student should take in all he can get. I will never let a student leave my office until he has a fair knowledge of all these essential requirements, including a good English education.

DR. WINDER: I arise to explain to Dr. Taft. I desired to say, if I did not, that the student should have the foundation of education, and I aimed to convey the idea that the study of anatomy, in its inductive sense, as to the nomenclature or the formation of language, was *quantum sufficit*.

I say it is lamentable that the system of education is destructive, not only to the individuality, but tends to the breaking down of nerve force, and precious lives are sacrificed. Four years' ago, while at Saratoga, I found two girls: one was a typical blonde, the other was a brunette. They were there taking treatment for softening of the brain, as a result of over college work.

The mission of woman is to adorn society, to be the goddess of home, the embodiment of all the graces; to have charge of moulding and forming the child's character, and its possibilities for usefulness, to be elevated above the temptations of life, and an object to be won by man, by culture, goodness, and bravery to do the right. In doing this, we would not require her to undergo the torture of absorbing so much false, or effete, college pabulum.

It is a favorable sign that some homes, or ladies' normal schools are being formed, where the women of the future can have practical education to make them the queens of home.

[OFFICE OF DR. RAWLS, 8 P. M.]

IRREGULAR TEETH.

DR. PATRICK: No two cases are alike. Teeth can be moved. The means to be employed depend on the ability of the operator. Time is necessary; and teeth must be moved slowly. Each tooth has a cell, and some teeth have two. The primitive cell is at the neck of the tooth. If you take a bicuspid, you will have two.

In moving teeth you must have a stationary point, and a movable point, that is, the appliance must have two distinct stationary points, or one on each side of the teeth you wish to move. On all the superior anterior teeth the alveolus is thin on the labial surface, and the tooth will move outward easier than inward.

The lower molars are more easily moved inward than outward, for the exterior wall is thick, and the interior thin. He would move teeth for patients thirty years old, if mouth and patient are healthy.

DR. McKELLOPS presented the Coffin plate with cases, and detailed the mode and the practical results that would come to the hands of nearly every dentist, and that this means would meet every requirement.

DR. TAFT: I wish to emphasize what Dr. Patrick said last night on the subject of the time or age when we operate for irregularities. We should not commence too early—not younger than fifteen years. The signs usually observed, that is the tri-coned cusps of the anterior teeth should be removed, or have passed away, as they indicate the apex-development. The appliance of Dr. Patrick is very valuable, as is also the Coffin plate system; and most of the cases presented can be corrected by this system. It is a fact.

DR. PATRICK: A case in practice—this is a model; the anterior teeth protruding, a land-slide as it were. All the teeth, to bicuspid, must be moved back, one at a time, tied until firm, then commence with the others. The trouble is in the anchylosis of the intermaxillary bones—a weakening of this joint is the cause of this case; and so with many others, when we have protrusion.

PRESIDENT McKELLOPS asked Dr. Patrick to read a letter he has from a prominent officer in the Ordnance Department, on the subject of amalgam.

DR. PATRICK said, after a lengthy research, I prepared an article on the subject of oral electricity, and it was read at Boston. I deem amalgam a bad thing—it's a *swell* and not a contract—it don't shrink, it swells.

As to solders, no base metals must be used as alloy.

Gold, 80 parts.

Silver, 7 “

Copper, 4 “

(See Haswell's handbook, in use by civil engineers.)

Never use solder of one make of gold for use in another.

Mix the solder with the scraps of the plate, and make solder from this plate, and continue the repeated making of solder with every piece of plate used.

DR. REHWINKEL: I have word from Dr. Peterman, of Frankfurt-on-the-Main, Germany, that the Delavan College is selling its diplomas in that country, and that concern is disgracing our country.

After a spirited discussion, denunciatory of the Delavan College managers, in disgracing the profession in this country, a committee was appointed to draft resolutions apropos of the feelings of this society, and report.

Next session resolutions were submitted, and the Society put its seal of condemnation on the Delavan College swindle, and a committee advised to carry the case before our authorities at Washington, to stop the swindle.

DR. HOW, of Philadelphia, made a demonstration of engrafting crowns on roots of natural teeth, which was very instructive, and enlisted universal attention.

DRS. SMITH, REHWINKEL, and others, heartily endorsed the method.

Dr. Rehwinkel was requested to give the German method of filling teeth. In filling with gold, the rolling motion of the instrument, and the coating of the point with gold, are essential.

[2:30 P.M.]

DENTAL PATHOLOGY AND THERAPEUTICS.

DR. RAWLS: We have a great deal of talk about mechanical manipulation in dental operations, overlooking the physiological and pathological conditions, when so much depends on the life force of the parts, and the general operator proceeds as if working on inorganic materials.

On the subject of the disease of the gums, we have no ætiology of this condition, that, as yet, has been definitely settled. I believe, as before stated, this disease to be constitutional. Certain articles of diet produce the same results, as well as certain medicines—mercury, salt food, and tomatoes. I believe the trouble is in the periosteum; and when the disease attacks the membrane, the tooth is denuded.

I have heard that this disease has been cured, but I have had patients from men who claimed they had cured said patient of this disease, but I find the disease there manifested; and I seriously doubt whether any of these cases are ever cured. We

hear of antiseptics being used, and cures effected; but I seriously question whether satisfactory results are ever accomplished.

DR. MORGAN: I believe we treat diseases and cure them, and still we do not know the cause; for we have our theories. I have one, Dr. Taft another, and you all may have others. The disease we have to combat every day is caries. We vary in our idea of the cause, but we treat and save the teeth. I do not believe that mercury causes it invariably or inevitably. I believe this disease is cured; but I do not say that the rosy health of youth can, or will ever be restored when once lost. I do not believe in the restoration of lost structure, but health of parts left. I doubt whether the circulation of the dentine, and the reproduction of alveoli, will be made when operations are from protoplasmic deposits. The predisposition to this disease, with the local cause, are sure to bring about results, hereditary or whatever you may call them.

On recovering from sickness, the patient never reaches the high standard of health possessed before the attack of disease.

DR. TAFT: Some advance the idea that local treatment is the only treatment required, and it is with these local cases that the cures are made in pyorrhea alveolaris. At present, we have various medicaments used—peroxide of hydrogen, iodides, zinc, solution of sulphuric acid, etc. As to the tissues built up, or secondary tissues, they are not reliable, for we too often find that disease tissues, when health returns, are similar to scar tissue, and disease soon sets in and destroys this pathological make-up.

DR. RAWLS says the disease is transmitted by heredity, and gives instances of it—not only the predisposition, but the direct result itself.

Dr. Taft does not believe that accidental defects are transmitted, or that this disease is any exception of the *special diseases*. Dr. Peabody thinks the position of Dr. Rawls correct. I find in my own practice, mother and daughter, mother and son, with pyorrhea alveolaris, on lateral incisors of each, and these must be hereditary.

I think it is the mercury *dying out*. I do not think tomatoes produce the disease, for we all know that vegetable diet is the best treatment for scurvy.

DR. PATRICK: If there is one thing more than another I have no fancy for, it is speculation.

I think this disease is local, and cleanliness is the great remedy. I don't think the disease a constitutional one, or at least the ones treated; *for you cannot by local means cure a constitutional disease*; therefore, those men who are making so many cures, locally, find the disease surely local, or else, we question the confidence in the statements of these cures. If you remove the cause, which, too frequently, is simply tartar under the free margin of the gum; if you remove this, and observe cleanliness, you have a return to health.

DR. MORGAN: I do not believe the disease is transmitted; but the predisposition is most assuredly transmitted. I don't believe that alveolo-necrosis results from it, and we all believe that friction is the best thing for the gums and teeth.

After a series of thanks, in the shape of resolutions, Dr. Chappell invited the members and visitors of the Southern Dental Society to meet with the Indiana State Dental Society, the last Tuesday in June, 1844.

Officers were elected as follows:

President, A. O. Rawls, Lexington, Ky.; First Vice-President, W. R. Clifton, Waco, Texas; Second Vice-President, T. S. Waters, Baltimore, Md.; Third Vice-President, B. H. Catching, Atlanta, Ga.; Corresponding Secretary, J. M. Fountain, Bryan, Texas; Recording Secretary, R. A. Holliday, Atlanta, Ga.; Treasurer, H. A. Lawrance, Athens, Ga.

After the installation of these officers, on motion, adjourned to meet in New Orleans, the last Tuesday in March, 1885.

CHICAGO DENTAL SOCIETY.

THE regular monthly meeting of the CHICAGO DENTAL SOCIETY was held at the rooms of the Dental Infirmary, 24 Adams street, on Tuesday evening, June 3d, with President HARLAN in the chair. Twenty-seven members were present and four visitors.

DR. P. J. KESTOR read a very interesting paper on Dentition, emphasizing the one particular point, that dentition was not the primary cause of infantile diseases,—that the diseases concomitant to dentition could be traced, in a large majority of cases, to improper feeding, or to sudden changes of temperature.

DR. MARSHALL: I believe the most plausible theory which will explain the eruption of the teeth, is that recommended by Delabarre, that the teeth are expelled from the jaw by the same process that a child is expelled from the uterus. [Dr. Matteson asked the speaker why it would not be good practice to administer ergot to help them along.]

DR. NOYES: Many children at this period of life are not robust, and the general health is not good, consequently dentition on such, makes a marked impression, producing considerable irritation and subsequent illness.

DR. NEWKIRK: Every process of development involves an expenditure of vitality and nervous force; and during the process of dentition, there is a certain amount of nervous force used; and if the child is not strong and healthy, there dentition is certainly an active factor in producing convulsions. This is the experience of mothers and physicians as well.

DR. BROPHY: I do not endorse all that the essayist has said; neither has he told all that is of interest in connection with this subject. There is a change taking place in the digestive organs at this period which wields a powerful influence in disturbing the health of the child, and promoting disease. Is there not another cause? There is, but not on the gums alone; the irritation is at the end of the root, because it lies in close proximity with the maxillary nerve, and it is here where the irritation in early infancy arises to a certain extent. Again, the gum tissue overlying the tooth is in a congested condition and the blood is very thick. When the gums are cut this congested blood escapes, and the child feels a positive sense of relief. I consider lancing the gums of paramount importance. A cicatrix is much easier to break than original tissue. I believe the irritation caused by dentition is instrumental in producing disease.

DR. REID: I have had some experience in watching the process of dentition in one child, and have always noticed thus far a tendency to considerable irritation, accompanied with more or less fever about the time the teeth are making their appearance. This difficulty has been readily relieved in every instance by simply cutting the gums over the incoming teeth. I do not believe that dentition is accountable for all the diseases attributed to this process of growth.

DR. CROUSE: I am much pleased with the independence of the paper. A great many diseases that are blamed to dentition, can be traced to improper diet, and over-feeding. Dentition cuts quite a figure in the health of the child. I consider lancing the gums as good practice, and do not hesitate to repeat the operation several times if the case demands it. A cicatrix does separate more readily than the natural tissue. I do not believe in the theory mentioned by Dr. Marshall, that the teeth are forced from the jaws by the same process that a child is expelled from the uterus. It is too slim to tie to. I believe the schools and places of education are where the laws of hygiene should be taught. If properly done in this manner, we would soon see, that the coming mother would be better educated to take the proper care in raising children. We would see less disease, and a decrease in mortality.

DR. BALDWIN: There can be no disease in a physiological process; and dentition is nothing more or less than a physiological process.

DR. BROPHY: Dentition is a physiological process, but where an obstruction takes place there is a change—as gum tissue in contact with a tooth. This changes it to a pathological condition.

DR. MARRINER: Reported a case of a child in his city that died from hemorrhage, because of lancing the gums, and that every physician in the place had become prejudiced against such practice.

R.

JUNE 12th, 1884.

IOWA STATE DENTAL SOCIETY.

THE twenty-second annual meeting of the Iowa State Dental Society was held at Council Bluffs, May 6th, 7th, 8th and 9th. Dr. E. E. Hughs, of Des Moines, President, in the chair. Although at the extreme western part of the State, the meeting was largely attended, and was one of the best in the history of the Society. The dental law and the dental department of the university are having a marked effect in raising the standard of dentistry in this State. The Society has located permanently every alternate year, after next year, at Iowa City.

The Iowa State Board of Dental Examiners met on Monday previous to the meeting of the Society, to examine candidates for licenses to practice dentistry in Iowa.

The following are the officers elected for the ensuing year: President, S. A. Garber, Tipton; Vice President, L. E. Rogers, Ottumwa; Secretary, J. B. Monfort, Fairfield; Treasurer, J. S. Kulp, Muscatine.

The Society adjourned to meet at Des Moines the first Tuesday in May, 1885.

J. B. MONFORT,

Secretary.

CHICAGO DENTAL SOCIETY.

THE regular monthly meeting of the "Chicago Dental Society" was held at the Dental Infirmary, the first Tuesday in April. This being the annual meeting, no paper was read. The important business was the election of officers for the ensuing year, which resulted as follows: President, A. W. Harlan, M.D., D.D.S.; First Vice President, F. H. Gardiner, M.D., D.D.S.; Second Vice President, P. J. Kester, D.D.S.; Recording Secretary, James G. Reid, D.D.S.; Corresponding Secretary, J. N. Crouse, D.D.S.; Treasurer, E. D. Swain, D.D.S.; Librarian, W. B. Ames, D.D.S.

R.

MINNEAPOLIS, MINN., June 10, 1884.

Editor Ohio State Journal, Toledo, Ohio:

DEAR SIR—The first annual meeting of the "Minnesota State Dental Society" will be held in St. Paul the third Wednesday in July (July 16, 1884). A large attendance is expected as an effort is being made to make this an interesting meeting.

Yours Respectfully,

T. E. WEEKS,

Cor. Sec'y.

301 Nicollet Avenue, Minneapolis, Minn.

It is not good for any one to shirk a duty or responsibility. The true policy is to meet every obligation squarely.

AMERICAN DENTAL ASSOCIATION.

THE twenty-fourth annual meeting of the American Dental Association will be held at Saratoga Springs, N. Y., commencing at 10 A.M., on Tuesday, August 5th, 1884.

GEO. H. CUSHING,

Rec. Sec'y.

Books and Pamphlets.

NOTES ON DENTAL PRACTICE: by HENRY C. QUIMBY, L.D.S., etc., with illustrations. Philadelphia, The S. S. White Dental Mfg. Co., pp. 202, cloth, \$; for sale by Ransom & Randolph, Toledo.

THE author of these "Notes" confines himself to "the treatment of abnormal conditions of the teeth," offering no theories as to the causes of dental diseases. Hence, we cannot commend the work to students. The busy practitioner can read the book with profit, although there is much in it that the American dentist will not accept as good practice. The author's careless use of such terms as "canines," "six-year," and "six-years' molars," "twelve," and "twelfth-year molars," "wisdom teeth," "nerve" for pulp, "forcep," etc., etc., is not very encouraging to the advocates of a nomenclature. It is bad enough to have these terms constantly thrown at us in society discussions, but writers should do better.

H.

THE SANITARIAN is one of the best among our exchanges, and every dentist should have it on his table. It is published monthly, at 113 Fulton Street, New York, at \$4 a year; 35c. a number. We append the table contents for June, which will speak for itself. Send for it.

"Canned Goods," by John G. Johnson, M.D.; "Drunkenness in Great Britain," by Henry Richard and Montague Scott; "A Shoe that will not Pinch—a Short Study in the Hygiene of the Feet," illustrated, by Benjamin Lee, M.D., Ph.D.; "The Cholera Epidemic in Egypt," Official Reports; "Sewers as Life Protectors," by Prof. Wm. H. Brewer; "International Sanitary Conferences in their Commercial Relations—Quarantine," by

T. P. Corbally, A.M., M.D.; "Disposal of the Dead," by Frederick Gundrum, M.D.; "Epitaphium Chymicum," by Boyle Godfrey, Chemist and M.D.; "How to Save Teeth from Decay," by H. E. Dennett, D.D.S.; "Editor's Table"—The Quarters of our Soldiers; Cholera-Bacillus; State and Local Boards of Health Reports; Conn.; Mich.; Minn.; Tenn.; W. Va.; Baltimore; Burlington; Memphis; Pittsburgh;—Sewerage of Newport; Waring's System of Sewerage in Paris; Mortality Statistics in the U. S.; Mortality Statistics Abroad; Vital Statistics of Immigration; Rags from Egypt; Yellow Fever Statistics; American Med. Association; Conference of State Boards of Health; American Pub. Health Association; "Obituary," Willard Parker, M.D. LL.D.; "Literary Notices."

THE *ANALECTIC* is a "monthly periscopic summary of the progress of medical science," and is well suited for the dentist who cannot take a number of medical journals, yet wishes to keep posted. It is handsomely printed in double-column pages, in clear type and uniform headings. Its extracts are freshly condensed from both foreign and domestic journals. \$2.50 a year; 25 cents a number. G. P. Putnam's Sons, 27-29, West 23d street, New York.

THE AMERICAN PSYCHOLOGICAL JOURNAL, issued by the National Association, for the protection of the insane, and prevention of insanity, is published quarterly, by P. Blakiston, Son & Co., Philadelphia, at \$2 a year. It is edited by Joseph Parrish, M.D., Burlington, Mo., and has associate editors in various parts of the country.

Our Aftermath.

ELECTRICITY AS A CARDIAC STIMULANT.—Prof. V. V. Zeimssen lately had a patient, a woman aged forty-six, who had lost a greater part of the precordial structures, exposing the heart; and he conducted a series of experiments to determine the effects of the galvanic and faradic currents respectively on that organ. He distinctly discovered that the induced current had no effect whatever, while the constant or direct current acted as a powerful stimulant. It is, therefore, useless, in cases of chloroform syncope, to waste time in the application of the faradic current, as is so commonly done.—*Med. Times (Analectic.)*

GERMS AND GERMICIDES.—J. C. Peters, M.D., writes : Carbolic acid, so-called, is not an acid, but an alcohol, and bacteria will live in alcohol for months. Nedwetsky made experiments on bacteria, in 1872, and found that they lived in strong solutions of carbolic acid ; too strong to be used upon sick persons. Calomel and quinine also did not kill them, nor opium, nor nuxvomica ; while dilute acids—nitric, sulphuric, muriatic, and tartaric acid, killed them, in five per cent. solutions. Tannin and gallic acid are also efficient germicides. Corrosive sublimate, one to twenty thousand parts of water, is safe and good ; also iodine, one to five thousand of water ; and bromine, one to fifteen hundred of water ; chlorine water requires two days to kill them ; a five per cent. solution of chloride of lime, ten days. Sulphurous acid, generated by burning sulphur, the most commonly used disinfectant, requires thirty minutes to kill them ; and the spores in micro-cocci will often live ninety-six hours in it. A five per cent. solution of chloride of zinc requires a month to destroy them, and they have been found alive and active at the end of that time. Turpentine, which has always had an approved reputation against puerperal fever, is active against bacteria, in one part to seventy thousand. The oils of peppermint and cloves are equally efficient. Benzoic acid, and benzoate of soda are inefficient.—*N. Y. Med. Planet (The Analectic)*.

SULPHATE OF COPPER.—M. Charpentier recently reported to the French Academy of Medicine, a series of experiments that he had made with sulphate of copper as a preventive of putrefaction (in midwifery), the results of which had convinced him that, in a solution of one part of the salt in one hundred parts of water, the agent was a trustworthy and harmless antiseptic. He urges in favor of this agent, that it is perfectly safe, very cheap, easily managed, and an instantaneous disinfectant, as well as a powerful antiseptic ; also that its astringent and coagulating properties are such that it may perhaps, in the future, take the place of perchloride of iron as a hemostatic, over which it has the advantage of not clogging wounds. The solution should be used warm, of the strength of one part to a hundred.—*N. Y. Med. Journal (Analectic)*.

CORROSIVE CHLORIDE OF MERCURY.—The use of a solution of corrosive sublimate, in place of carbolic acid, is now on trial in some of the wards (Rotunda Hospital, Dublin), and thus far the results have been very favorable. The strength used is eight grains to a pint of water—that is, one part in a thousand. It is very much cheaper, which is quite an argument where there is much used.—*St. Louis Cour. Med. (The Analectic)*.

HOLMES says: "Diagnosis has reached a wonderful degree of accuracy; prognosis has become a terrible kind of second sight, which is not always handled carefully enough ; treatment gains a little with every decade."—*Chn. Lancet and Clinic*.

ALAS ! if the principles of contentment are not within us, the height of station and worldly grandeur will as soon add a cubit to a man's stature as to his happiness.—*Sterne*.

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Contributions.

"A word fitly spoken is like apples of gold."—SOLOMON.

A RESUME OF TREATMENT OF ALVEOLAR ABSCESS.

BY F. W. SAGE, D.D.S., CINCINNATI.

[Read before the Mad River Valley Association.]

A WELL known contributor to dental literature speaks of the "always present abscess at or beyond the apex of a devitalized root." The fact, however, that dentists of unquestionable attainments, who are supposed to know what they are about, not unfrequently cleanse and fill roots at a single sitting, without apparent apprehension of after trouble, would seem to indicate one of two things: either that they dissent from the opinion above quoted, or else that they are possessed of unusual powers of discrimination, as regards safe and hazardous cases which come into their hands. There is, however, no wonderful secret to be revealed regarding this off-hand and summary way of dispensing with the usual routine of treatment. It is doubtful whether those who occasionally adopt this course with dead teeth stop to make close and critical inquiry as to whether or not an abscess exists. They perhaps require no further reason by way of self-justification,

than the fact that experience has taught them that, in certain cases and under certain circumstances, roots may at once be filled with impunity.

Reasoning *a posteriori*, we proceed to examine a case where a root has been thus filled without preliminary treatment for abscess, and with every appearance of success, as regards the non-occasioning of after-trouble. It is to be observed, in the first place, that this is a course of procedure recommended ten or a dozen years ago by Dr. Black, of Jacksonville, Illinois. It differs, however, essentially from Dr. Black's idea in that it is an attempt to evade the responsibility and trouble of treating for abscess, by avoiding a disturbance of the parts where abscess is suspected; whereas Dr. Black's deliberate purpose was, as we understood it at the time he promulgated the idea, to force the abscess presumed to be invariably present, to point on the gum; in other words, to convert the class of blind abscesses, so difficult to treat successfully through the root canal, into open abscesses, or abscesses with each a fistula. While Dr. Black's idea was to proceed heroically, and regardless of the suffering entailed upon the patient, to reduce the abscess to a condition favorable for radical treatment, the treatment of which we now speak is based apparently in the idea of letting well enough alone and avoiding disturbance.

Dr. Black, it would seem, recognized the necessity of securing a counter-opening through the gum, as a requisite to successful treatment. His after-treatment of the case, as we remember it, was by the usual method of slitting up the fistula, securing a free opening through the alveolar walls, and stimulating the parts to healthy action. His method of procedure has been criticised on the ground that, while it involved much lingering pain and distress for the patient, it possessed no advantage over the generally approved method of lancing and drilling through the process, in the first place, by way of forestalling nature's slower method of relieving the affected parts. It was probably a recognition of the wide difference sometimes existing between theory and practice, which suggested the idea of the unheroic method we have referred to. The dentist discovered that the heroic method was quite satisfactory from his point of view; at the same time, perhaps, he discovered upon searching the records that he had never repeated for one and the same individual, the somewhat

severe operation of lancing the gum, trephining the bone and packing the cyst by means of a tent. He found that the radical course of treatment involved the infliction of considerable pain, and that the use of tents to keep the parts patulous and induce healing of the cyst by granulations from the bottom upward, sometimes meant severe inflammation, and two or three days' detention from business. He had observed that many dead teeth occasion no pain from month to month, and from year to year; and, as the result of patient experiment and many failures, he finally came to recognize certain cases which admitted of being at once filled.

This brings us back to the investigation of an imaginary instance to which we are triumphantly referred as illustrating the feasibility of dispensing with treatment. This tooth, it will be observed, is of solid, dense structure. We opine that the operator proceeded with extreme care and delicacy to remove the dead pulp, avoiding injudicious probing through the foramen. We venture the assertion that the pulp had not been so long dead that its consistency was entirely lost, and that if it was discovered under a broken or leaky filling, it was at least so protected that the presence of foreign particles had not caused it to become compacted in the canal. Everything points to the fact of the apical foramen having been found impervious to the finest nerve bristle. This conjecture, if it be correct, is significant; for it follows that in all probability no air found ingress through the foramen to excite active decomposition in the cyst, supposing there was a cyst. Probably the dentist gathered encouragement from the fact that, after having removed the decomposed pulp and washed out the canal repeatedly, there was no persistent, offensive odor such as he had noticed about old chronic cases. It was not one of those cases in which the structure of the root seemed permeated with putridity, so that nothing would sweeten it. Had it been such a case, he would have hesitated to do as he did, for he would have foreseen trouble almost certain to ensue.

Let us now consider and compare these different courses of procedure in filling roots, and award to each the merit to which it is entitled. When it is certainly known that a blind abscess exists at the end of a root, there is a certain advantage in lancing through the gum and trephining the bone, over the alternative of waiting for nature to establish a fistula. The advantage consists

in this, that active inflammation thus artificially induced usually results more speedily in a cure than is possible, at least in old chronic cases where a fistula has long existed. Granting that it is possible in many cases, with proper precaution, to fill at once many roots which hitherto have been supposed to absolutely require repeated treatments before being filled, and assuming what is probably true, that the development of abscess is only a question of time, the long delay renders more and more difficult the final cure of the abscess. The wall of limiting fibrine, constituting the so-called pyogenic sac, gradually loses its vascular character, becomes thickened and indurated, and assumes an appearance, in time, of fatty, degeneration, as we often see about the roots of extracted teeth long diseased. This thickened membrane resists the action of escharotics, and indeed of any and all of the remedies commonly used, so that we find such old chronic cases practically incurable, excepting by means of an extensive operation with the knife, more popular in theory than in practice. Taken in their earlier stages, however, the vascular wall of limiting fibrine responds to the influence of tonics, astringents, or escharotics, and is converted into healthy tissue, or absorbed, or remains, at least, inert.

In the treatment of obstinate cases of long standing, the use of catgut, introduced through the fistula for the purpose of dilation, illustrates a principle in surgery the value of which is not fully appreciated by all dentists. The idea is, when stimulants and caustics have failed to secure healthy action, to break down the unhealthy granulations deep-seated in the cellular substance of the parts by continued pressure. This principle is applied in the treatment of leucorrhœa and of stricture of the urethra, and often effects cures when medication has been of no avail. A chronic fistula in the gum is simply an elongated abscess which, by the use of a catgut tent, may be expanded sufficiently to excite healthy inflammation, eventuating in a cure without medicine.

But, says the advocate of no-immediate-treatment-for-abscess, let us present our claims. To begin with, we think you radical-cure men make altogether too much of this matter of curing abscesses. We are about prepared to say that we consider it of slight importance whether the abscess be *ever* cured, provided we can avoid irritating it when we fill the root. Do you not know that abscesses often remain for years encysted in other parts of

the body without causing inconvenience? We claim that the condition of the parts is so ameliorated by the substitution, in the root or roots, of a good, solid, impervious filling, for the mass of putrefying matter removed, that the further treatment of the abscess is of little moment. Moreover, every time you pump medicine, or tepid water, or indeed anything through a root, so as to distend the sac, you run a risk of inducing pyæmia.

Very true, we admit, as to this last statement. Nothing of a fluid nature, not even tepid water, should be forced into a blind abscess, until after every effort has been made to drain off the accumulated pus. If a fistula exists, the danger is greatly diminished, because the fluid so introduced then simply drives out the pus through the opening. But to force carbolic acid especially, which, in a concentrated form is an irritant poison, into a blind abscess, is a most pernicious practice. It is doubtful whether its use beyond the apex of the root is ever indicated.

The true value of carbolic acid as a destroyer of bacteria, is to be found in flooding the canal with this remedy during the operation of removing effete matter. A careful consideration of Lister's method of using carbolic acid to prevent pus-degeneration in treating wounds, suggests the possibility of at once treating and filling any root canal without danger of exciting severe inflammation. The canal should be kept constantly full by means of a drop tube. In two instances in which the experiment was tried by the writer, no more than a slight soreness followed. The dam was applied and the cavity flooded with carbolic acid from the instant attempt to enter the canal was made. The apex of the root was filled with lead driven in carefully, so as at the same time to force out the acid, afterwards the root was dried out and filled with gutta-percha.

Lister claims for this method of treating wounds, by rigidly excluding organic germs floating in the air that, "even in extensive lacerations and mutilations, union will take place without the formation of a single drop of pus, and without the occurrence of any general febrile reaction." This is disputed, however, by Ponchet, Bastian, and other scientists. Briefly stated, Lister's method consisted in protecting the parts with the vapor of carbolic acid, and with dressings of the same frequently renewed. In reading the details of his method of applying the acid, *frequently renewing* it, and never for an instant allowing the air to

gain access to the wound, excepting after having been filtered through the medicated dressing, we may gain a hint about treating roots with this remedy. The query arises, is it sufficient to leave a few fibres of lint soaked with the medicament in the unsealed root, as is often done, with the idea of allowing drainage from the suspected abscess? We may also gather other hints from reading the details of his practice, as for instance, where he strictly enjoins constant care to protect the raw surface and edges of the wound from direct contact with the carbolic acid in the dressings, since it would infallibly produce sufficient irritation to cause suppuration. In another place he speaks of syringing out an incised or lacerated wound with a solution of carbolic acid, being extremely careful not to inject it forcibly so as to get up a high pressure, or the cellular tissue in the neighborhood becoming charged with the solution, will take on active inflammation.

Perhaps this will serve as a hint to those inquirers after light and information who write to the budget department of the journals, to know why a tooth which has enjoyed a life-long reputation for orderly walk and conversation, suddenly develops symptoms of total depravity under the well-intended ministrations of the dentist. The explanation suggests itself at once. One of two conditions probably existed about the root of that tooth; there was either an old, chronic abscess filled with pus and partly disorganized matter, or a condition of the tissues favorable to inflammation, which is the precursor of abscess. The dentist used a broach which had already dried pus from somebody else's abscess upon it, or he used a clean broach, we won't insist upon complicating matters, and he pumped up carbolic acid, in full strength, into the root, and jobbed away at the foramen without succeeding, at first, in getting through; but at last he got through by a squeeze, and then he stopped, seeing no evidence of a fistulous opening. He wiped out the excess of acid, and thrust up a few fibres of silk floss, and told the patient to call the next day and let him see what progress it was making. The next day it was discovered that the progress made was considerable, more indeed than either dentist or patient had anticipated. The patient said he had consulted his physician, in the night, and had been told he was in danger of blood-poisoning, and nothing the dentist could say, upon his word of honor, could convince that patient that he was not suffering from the effects of a half ounce

or so of arsenic or strychnine pumped into his tooth. Or supposing it was not, after all, an old, chronic abscess, but only a young one, with vascular walls of limiting fibrine, and no sign of a fistula; the carbolic acid being pumped in through a minute orifice distended the parts, and penetrated the soft tissues, and severe inflammation was the result. The reason, probably, why severe inflammation is not so likely to follow when the foramen and the canal are large and easily penetrated, is either that the acid incidentally regurgitates, owing to the difficulty of making a cotton piston sufficiently dense to prevent leakage, or it may be, as in the case of an abscess of long standing, the walls of the sac, having become thickened and indurated, prevent the acid from escaping through into the healthy, inflammable tissue.

It will be noticed that when the pus in the sac can be easily induced to flow out through the root, by probing with a broach, the danger of inflammation is greatly reduced. In such a case, the pus being evacuated, the pernicious effect of germ organisms allowed ingress to the sac is but little to be feared; and the very fact of pus being found where there is no indication of recent inflammation, indicates a wall of limiting fibrine, which may not easily be provoked to inflammation by injecting carbolic acid, though it might be so affected by using a strong solution of chloride of zinc.

But, some one inquires, admitting the truth of all this, what is the remedy? You profess to have explained the manner and cause of the mischief; how will you treat a blind abscess so as to avoid all this? In reply, we refer the questioner to Dr. Flagg's prescription: lance through the gum, and drill through the bone to the apex of the root threatened with abscess, and so anticipate trouble. It is our private opinion that this is rather heroic treatment, and in actual practice we have found few who would more than once submit to it. Moreover, it is not always possible to strike the sought-for apex; and, finally, the abscess is not always directly at the apex. There are two other methods of treatment which are not without merit. The first is to wash out the canal with a solution of carbolic acid, one part in thirty-three parts of distilled water, avoiding distension of the sac as much as possible, and coaxing a flow of matter if possible. We do not favor drilling out the apex, ordinarily. Every dental surgeon must have had occasion to notice that a foramen, apparently impermeable,

may be easily entered on the second or third day, or after the pus has begun to flow. This solution of carbolic acid will be far less likely to occasion inflammation, even though it penetrate the cellular tissues, than the acid in full strength, which, when concentrated and confined, is an irritant poison. The solution is sufficiently strong to kill bacteria. The after treatment of the abscess may be completed with a solution of sulphate of zinc, one grain to the ounce of distilled water. This supplements the treatment with the carbolic acid solution, since the sulphate of zinc is stimulating, and is a better astringent than carbolic acid, and does not, like chloride of zinc, destroy tissue, but simply hardens it, and favors the closing upon themselves of the walls of the now emptied abscess.

The query arises, by the way, whether the use of powerful corrosives injected into a hidden abscess is a rational course of treatment? What object is sought to be obtained? We can conceive of the necessity of a caustic application upon an exposed ulcer, from which the resulting eschar may be lifted away at the proper time, but what becomes of the wall of limiting fibrine in a circumscribed abscess, after having been burned with a caustic? It either forms a horny mass, or is converted into granular matter, or calcifies, and the conclusion would seem to be that relief by an operation with the knife, to remove the foreign particles, becomes necessary, after all. Why not then resort to the knife in the first place; break up the sac and remove it, leaving a healthy surface favorable for granulations?

Now, the idea of dispensing as far as possible, with any treatment for abscess, filling the root at once, if that be considered possible, is, we strongly suspect, based on a growing belief that an abscess, silently and slowly developing at the end of a filled root, is no very serious matter at the worst. It is seen to remain there, month after month, and even year after year, in many cases, occasioning little or no inconvenience. It is remarked that even after the most thorough and heroic treatment, abscesses recur in not a few cases. "If I can manage to do it without raising a disturbance, I propose to fill this root at once, and take my chances of having to treat the abscess through a fistula, later on," says the operator. "I am not sure this patient will return to have it treated now, if I set about to cure the abscess, I will fill the tooth and get my fee, and be done with it at once. If I

should set out to treat this abscess, the chances are he would come in to-morrow with a swelled face, and call me a pirate ; whereas, if he comes in a year hence, with one eye closed and his lip puffed out like a turnover, I can lecture him on the evils of high living, and reckless exposure ; and he won't think I ought to apologize and make him a present of five dollars for making his tooth ache."

If we knew more about the subject of diathesis, we might avoid much feeling-of-our-way to avoid trouble. What are the signs of the inflammatory diathesis ? Nobody knows very definitely. We know, however, that our red-haired, freckled-faced, florid-complexioned patients require careful handling ; so also does the individual with the bulbous nose, whose visage betrays bibulous excesses ; so also does this pale-faced, hollow-eyed young Miss, whose nervous system has been over-stimulated in the school-room. Persons of a full habit induced by over-feeding, those of a gouty or rheumatic turn, as well as those suffering from malarial poison, usually exhibit the inflammatory diathesis. Scrofulous subjects offer but little encouragement to the dentist who would illustrate the certainty and ease with which an alveolar abscess may be cured. The scrofulous diathesis may be recognized by the following physical characteristics, as defined by a well-known authority : There are two classes of individuals who exhibit this diathesis—the first have dark skin ; large, prominent, black eyes ; high cheek-bones ; wide, dilated nostrils ; thinly chiseled lips, limbs disproportionately long, feet large, and instep low. They usually have a lounging, or sidling gait, and are, in many instances, knock-kneed, their toes having a tendency to turn in. Persons of this description are peculiarly susceptible to malignant disorders, resulting from inflammation. In such, the ravages of syphilis are terribly exhibited, if the disease be contracted.

The second class of scrofulous subjects presents quite a different physical aspect. The skin is light, fine, and soft ; hair red, flaxen, or at least sandy or brown ; eyes light or dark blue ; heads large, and nearly always unduly developed in the intellectual regions ; eyes prominent and marked by a dreamy look, or at times by great vivacity of expression. Their necks are too long and slender for their heads ; their breasts are flat, and chests narrow, and they have, so to speak, no back-bone. Individuals of

this class are disposed to take on diseases which find a lodgment in the mucous structure. So much for diathesis.

A species of abscess, not very readily cured, in which it seems impossible to stimulate healthy action, is not unfrequently noticed by the dentist. It does not seem to be associated, necessarily, with any affection of the bone: is usually easily accessible to the introduction of medicine; is indolent, and discharges, on pressure, a thin, sanious, or ichorous pus. Liquids may be injected in unusual quantities through the root-canal, before presenting an appearance at fistulous vent; and the impression grows upon the dentist that they are widely diffused through the tissues, and not simply received into a reservoir or sac. This class of abscess probably belongs to what is described in general as the *diffuse* abscess, having no wall of limiting fibrine, and is a common sequel of pyæmia.

In conclusion, let us consider, very briefly, the relative value of some of the remedies in common use for treating abscess. Carbolic acid, properly used, is valuable for its antiseptic, as well as for its anæsthetic and stimulating properties. Salicylic acid is a better antiseptic, and is free from odor, but is not, like carbolic acid, volatile in its nature, and for that reason is considered inferior to the former acid, by those who regard the vapor as efficient in preventing decomposition. In recent abscess, it is not less irritating than the former, and is, perhaps, to be regarded as possessing few if any real advantages over carbolic acid.

Tincture of iodine is a valuable agent, on account of its stimulating power, and its peculiar influence in relieving congestion, by relieving the engorged capillaries. Used in full strength, it is too active an agent to inject into a recent abscess; but diluted with an equal quantity of alcohol, it may be safely used.

Peroxide of hydrogen seems to be a powerful cleansing and stimulating agent, and from reports of those who have used it extensively, it appears that it is, least of all remedies in use, liable to excite inflammation. It is doubtful whether its use alone will eventuate in a cure of alveolar abscess, but as an agent to drive out most effectually the pus in the sac, it may safely be relied on.

Eucalyptus oil has apparently effected cures; but its powers, as an antiseptic, stimulant, astringent, or what not, are not definitely and unequivocally rated in the dispensaries.

Boric acid has antiseptic powers inferior to either carbolic

or salicylic acid; but it is proportionately less irritating to a raw surface.

It is stated as a fact worthy of the attention of dentists, that a few drops of glycerine in a vial of carbolic acid, greatly increase the facility of ingress through apparently closed foramina. Experiment has shown that while the pure acid could not be forced, under heavy pressure with a piston to penetrate an exceedingly minute opening in a steel plate, the object was readily accomplished by adding three or four drops of glycerine to an ounce of the acid.

THE PROMOTION OF OSSEOUS DEVELOPMENT.

BY GEORGE WATT.

[Read before the Mad River Valley Society.]

IN the statement of the proposition it is taken for granted that bone may be developed, and that such development may be encouraged or promoted.

In a constitution perfectly healthy and well balanced, the bony tissues are developed exactly to the extent that they are needed; but in this proposition it seems to be taken for granted, also, that the process of development is not always well balanced. It may be easy for one constitution to develop bone while it partially fails in the development of muscular tissues. In another, the constitutional tendency may be toward the development of nervous tissue, while another runs to fibrous tissue in general.

The question now comes up—can we, in cases of badly balanced development, do anything to restore or to establish a constitutional equilibrium? All will admit that by violation of the laws of health we can do much to bring about an unbalanced state of the constitution; and it seems but reasonable that we ought to be able to do some good by a reversal of the process.

In a "one-horse-shay," and in any machine, the weakest place must stand the strain, and the way to guard against its breaking, in order that it may be honestly worn out, is to "make that place as strong as the rest." We may thus get a hint on the subject before us. If an organ or function be weakened, so that it partially fails to do its part in the economy of the system, one of

two things seems to be called for: We may endeavor to render its work easy, so that it can perform it notwithstanding its debility, or we may try to arouse it to increased energy of action. Either process may, for the time, restore or establish the desired equilibrium; but the latter mode may be similar to the plan of whipping or spurring the exhausted horse. Just as in case of the horse, we must inquire whether the defect results from sluggishness, or from exhaustion. If from the former, we may stimulate, but if from the latter, we would do only mischief by such a course. We saw this plan illustrated when a boy. A shiftless man, with a team, stopped to beg a dinner for himself, and some thread to make a whip-cracker. While eating, and repairing his whip, his horses stood tightly reined, in the hot sunshine, and we were not surprised to see that he was fatter than his horses.

All tissues are formed from the blood. "For the life of the flesh is in the blood," is a physiological truth, taught by infallible authority, many long centuries before Hippocrates. Hence, whatever is to be built into the body must be passed to it through the blood. And so it follows that no tissue can be nourished unless the blood contains the materials necessary to its nutrition—the materials of which it is composed. It does not follow, however, that an organ will certainly be nourished, because the blood contains the desired nutritive principles; for it may not be able to appropriate that which is prepared and ready for it, just as a man may starve in full sight of food, because not able to take it.

It must be always borne in mind that the nutritive functions create nothing. They cannot use that which is not already formed. And let it be remembered, too, that all organic bodies are built up in strict accordance with the laws of chemical combination. Vitality modifies chemical action, but never contradicts or destroys it. It may determine what combinations can take place under certain circumstances, and what can not. It may prevent one, and promote another combination; but, in order to promote any, the materials must be there to combine.

Furnishing food for vegetable life is commonly called manuring; and when feeding his plants, the intelligent farmer tries to know what his soil contains, and what are the constituent materials of his plants; and if the soil is short of these constituents he supplies them. An instructive case of this kind is recalled by memory. A minister of the gospel owned a farm. He called on

a man, who had some reputation as a chemist, and asked him if he was prepared to analyze soils, and was told that want of time was the only lack, but that would prevent his giving any attention to the soil. But the chemist added—"If you tell me what is the trouble, I may help you without an analysis." "Well," said he, "it will not produce anything." "But that is a slander on your field," said the chemist; "any field you have will bring something. Can you raise straw, or corn-stalks on it?" "Why, yes," said the man, "great crops; but no grain." Knowing the land to have a sufficiency of lime and magnesia, the chemist told him to give the field a dose of phosphorus, otherwise bone ashes. The remedy was tried, and a wheat crop of twenty-five bushels to the acre, followed by a crop of corn of over seventy, was the result.

The same principle governs in animal life. Just as the rootlets of the plant can not find and use from the soil that which is not there, so a tissue can not appropriate from the blood ingredients not contained in it. We have already alluded to the fact that chemical laws are not violated in the formation of living growths; and as quantity of matter is one of the modifying circumstances of affinity, it follows that when anything essential to the development of any texture is deficient in quantity in the blood, the development of that texture is promoted by furnishing it in greater proportions to the circulating fluid.

In ordinary constitutions, some essential constituents are more readily assimilated than others; and this is not more a matter of surprise than is the fact that some foods are digested with greater facility than others.

Bone, like other organic matter, is composed mainly of carbon, hydrogen, oxygen, and nitrogen. These constitute its diet, but not its desert. For this it wants salts, and similar materials; and an important, if not the most important one, is the subphosphate of lime. At the risk of disturbing a friend, we will state that this is not the neutral phosphate, but a much more stable salt—one that will endure a white heat, without decomposition. To distinguish it, some of the older chemists have recommended that it be called simply "bone phosphate." Not only is this ordinarily the most important salt concerned in osseous development, but it is often, if not always, the most difficult to obtain and assimilate. And this statement is all the more confirmed by

the fashionable habit of separating the greater portion of the phosphate from the food producing grains before using them. As early as 1854, we called earnest attention to this, recommending that whole grain flour be substituted for the white family flour of commerce. We had been administering the bone phosphate as a medicine, to aid in bony development, from the time we began practice, in 1844, and we never had cause for discouragement in its use. Good results were as uniformly obtained from its administration as from other medicines. Prof. Taft will remember a case thus treated, in 1849 and 1850, with the most satisfactory results. At the risk of hearing something told you before, please listen to a report of this case:

Mrs. M., aged 25, was the mother of two children. She had suffered much from defective dentition, and needed an upper artificial denture. The two children had scarcely any sound teeth, and were often crying with toothache. A third conception had taken place. From about the third month of utero-gestation, at our suggestion, she used daily, and usually three times a day, the bone phosphate. From a pale, emaciated woman she became full-faced and rosy-cheeked; had an easy, natural labor; the babe weighing over twelve pounds; and this child, in time, had a most excellent set of temporary, followed by an equally good set of permanent teeth. The phosphate was continued during the period of lactation. The contrast between this child and the other two was too decided to be accidental; and the case is merely a type of others treated in a similar way.

In 1855, we mentioned this case to Dr. Elisha Townsend and a few other dentists. One of them reported it to his family physician, and requested that his wife be allowed to follow the same course. The physician feared that it might render the labor more difficult, but the phosphate was administered in rather limited quantities. The result was quite satisfactory, and continued to be so till all but the third molars were developed. We then lost sight of the case. The other children in the family had very defective teeth as compared with the one aided by the bone phosphate.

The phosphate used in these cases was prepared by dissolving bones in hydrochloric acid, precipitating with ammonia, and washing and drying the precipitate. We do not think any *better* form of the medicine has been suggested, but some have been prepared so as to be more pleasant and palatable.

But food is better than medicine. Let foods rich in the phosphate be used. The lean meat of beef, mutton, fowls, etc., answer a good purpose. Cracked wheat, oatmeal grits, if properly prepared, are also valuable. From experiments tried long ago, we were led to believe that veal and pork are not so rich in the phosphate as are the meats above mentioned.

Some authors speak of the subphosphate being unreliable, if not inert, as a medicine, on account of its insolubility; but their objection loses force through their accompanying statement that it is *highly soluble* in hydrochloric, acetic, and lactic acids. We may add that it is also highly soluble in solutions of carbonic acid; this being the agent that holds it in solution in normal saliva, which can be well remembered by association with the fact that it is the removal of the free carbonic acid from the saliva, by ammonia, that causes the precipitation of this salt in the form of tartar. As all four of these acids are common in the stomach, there can be but little difficulty in obtaining a solution of the salt in it during the process of digestion.

Others have objected to the use of this salt on the principle that inorganic matter cannot be assimilated by the animal economy. But as this drug is obtained by solution and precipitation from *bones*, the inorganic objection falls.

If readily obtainable, it is well to use some of the more elegant preparations, such as wheaten phosphates, lacto-phosphate syrup, etc.; but sometimes a fatal delay occurs, because these are not at hand. If not already prepared, the preparation of the salt is so simple, and the chemicals needed in the process are so readily obtainable, that there is no excuse for delay or negligence.

In considering this topic, it is to be understood that all the nutritive functions are to be in good working order. Sometimes the digestive apparatus and the assimilating powers are so feeble that they are scarcely able to develop any of the tissues. If possible, these are to be restored to health and strength preparatory to special development; for we can scarcely promote osseous development when the vital powers are so enfeebled. And this state of affairs suggests counsel and co-operation with the family physician, provided he is a gentleman, and not an empiric.

To sum up, let us bear in mind that all tissues are built up from materials taken from the blood; that the nutritive functions create nothing, but only digest, assimilate and appropriate; that, therefore, unless the needed materials are in the blood, in the

required quantities, there must be defective tissue building, or no development of tissue at all; that when the needed materials are abundant, there must be, other things being equal, a better and fuller development than when they are deficient in quantity.

We have tried, in a hurried way, to discuss the general principle; rather than to give recipes. Such a course is more likely to call out original thought.

ANTISEPTICS AND DISINFECTANTS.

BY E. J. LILLY, M.D., CIRCLEVILLE, O.

[Written for the Mad River Valley Dental Society.]

SO MUCH has been said of late about antiseptics and disinfectants that seemingly nothing more remains to be disclosed. But in looking up the literature of the subject we find so many contradictory statements that it would almost be an impossibility, without direct experiment in each case, to tell what is true and what is not true. To carry out such a series of experiments, however, would require no little time and labor; for to gain any reliable results the conditions should be as diverse and varied as possible, the agents used in all degrees of strength, and the results, in every case, noted to the minutest particular. We haven't much that is new to offer in this regard, but will attempt a short sketch of what has been accomplished and is best known relative to the subject.

By an antiseptic we understand a substance which has the power of preventing decomposition in dead animal or vegetable matter. A certain degree of warmth, together with moisture and access of air, are necessary to the occurrence of putrefactive changes, which consist essentially in the breaking up of the complex organic compounds, and the formation of new and simpler combinations. During the process various gases are evolved, and lower forms of animal and vegetable life are observed to grow and multiply in the decomposing mass. Putrefaction may be prevented by removing one or more of the conditions under which it takes place. If, after subjecting the substance to a certain degree of heat, air (and of course the organisms suspended therein) be excluded, the dead matter can be preserved for an indefi-

nite length of time. Extreme cold will accomplish the same result, though in a different way. Numerous chemical substances have the power of preventing decomposition, while others have a deodorizing property, acting by oxidizing, deoxidizing, or otherwise changing the chemical constitution of the substances, and are, in virtue of these properties, effective disinfectants to that degree.

A disinfectant proper is understood to be a substance, or preparation, that will not only arrest putrefaction by destroying the cause, but will, at the same time, render the products thereof harmless. There is no connection between the power which prevents decay from setting in and that which checks or stops it when once begun, for antiseptics in general have but a slight effect upon bacteria. Exceptions are found, of course, in those substances, like corrosive sublimate, which are violent poisons, and which are both antiseptic and disinfectant.

The increased attention bestowed, of late years, upon sanitary matters has led to the manufacture of numerous materials claiming to be valuable as antiseptics and disinfectants. But so many of them having been tried and found wanting, the tendency now is to undervalue and decry the use of nearly all. The failure to obtain satisfactory results is, in many instances, probably due to confounding antiseptics with disinfectants and deodorizers, trying to make one agent do the work of another, and from ignorance, perfectly justifiable in many cases, of how, when, and where to apply them. For instance, if we wish to purify some water, in which is suspended decaying vegetable matter. What agent will best serve the purpose? Shall we use carbolic acid? or corrosive sublimate? The odor of the first would simply mask the other smell by its own, while the second would not even do that. Of course the mercuric chloride would be death to the animalcules in the water, but citric acid will destroy all of them, except cyclops and those with thick epidermis, in two minutes, and still leave the water fit for use. Evidently some oxidizing agent, like potassium permanganate, or, better still, hydrogen peroxide, is indicated. Again, we wish to be relieved of some obnoxious odors, of which hydrogen sulphide is the most prominent and disagreeable, and the question is, what agent to use in this case. Would creosote, salicylic acid, sodium chloride, or potassic permanganate answer? Neither of them would be of

much value, but plumbic acetate, or some other metallic salt that would decompose and unite with the sulphide, would be the correct remedy. Or, take some putrefying animal matter. Plumbic acetate, to combine with the sulphur compounds, is indicated for one thing. But since, for the purpose of disinfection, it is not only necessary to destroy odors and retard the development of spores, but it is also needful to kill the micro-organisms, and that, too, in the shortest possible period. Therefore only such agents as are bacteriacides, like mercuric chloride, bromine, etc., can be effectively used in such a case, and are the agents to select.

The study and correct application of true antiseptics and disinfectants may be regarded as a very important practical question; for the sanitary weal of the individual, of cities, and even of countries, sometimes depends upon rational disinfection. But with even our most powerful agents, it is almost impossible, at times, to render innocuous the gases of decomposition and decay, or to accomplish the destruction of those living organisms of simple structure, whose importance relative to the propagation of disease we have so much reason for believing to exist, so tenacious of life, so minute and unfindable are they. If we knew always just where to look for them, and, after having found them, what agent to apply to each species, what sized dose it was necessary to administer, etc., we could most assuredly contend against them successfully. As it is we are in the predicament the Irishman was with his flea remedy: He had his brick all ready, but the flea had first to be caught before he could mash him with it.

Fortunately many of these noxious substances give us warning of their presence through the medium of the olfactory organs. It will be remembered that the sense of smell is excited by gases only, including of course under this term the vapors of liquids and solids which have low vapor-tension, and which, in consequence, give off vapors at the ordinary temperature. The difference in smells or odors is caused by the difference in the nature of the vibrations of the gaseous particles, just as the difference in the tone of musical sounds depends on the rate and on the nature of the vibrations which strike the tympanum. So we cannot properly say we smell a decomposing mass, but only the gases evolved during the process; and we are too apt to think that the only deleterious products of decomposition are those that offend the nostrils, being satisfied when the odor has been destroyed.

This is a mistake. Among the products of putrefaction are some gases, mostly sulphur compounds, of very repulsive odor. This is a most fortunate circumstance in one respect, as the odor not only serves to make its presence known, but prompts the individual either to flee from it, or employ ventilation for comfort's sake. But it is not only foul-smelling substances that are harmful, for they may be deodorized, yet retain their poisonous properties long after the odor is gone. For example, carbon disulphide, a very poisonous liquid, the vapors of which produce intense headache and vertigo, has, usually, a repulsive odor; but it is not difficult to deodorize it without affecting its other properties. Deodorized alcohol is no less a poison than it was before. Then again there are substances, like carbon monoxide, marsh gas, etc., which possess no odor, and their presence is made manifest only by the effect produced in inhaling them. Against such substances we have no protection except nature's disinfectant, the atmosphere. Yet there are numbers of agents which, used intelligently, will bring about excellent results, and it will be found that each possesses a definite scope of action. Thus carbolic acid is, in general, the antiseptic for crude masses of matter, salicylic acid for the laboratory, while thymol, hydrogen peroxide, glyceroborates of sodium and potassium, listerine, etc., are to be used in the office.

There are so many materials claiming recognition as good antiseptics or disinfectants that to give a list of them would consume too much time; but they all produce their effect by acting as poisons to the infusorial organisms which are held to be essential to the occurrence of putrefaction. A solution of quinine will prevent decomposition in an organic broth, as will also carbolic acid, salicylic acid, borax, alum, iron salts, etc., but they cannot properly be called disinfectants, although they are frequently used for the latter purpose. But carbolic acid, the essential oils, burnt coffee, scorched rags, and the like, all have an odor of their own that only masks the other smell without destroying it.

A very good disinfectant, and one that has become quite prominent of late, is listerine. Of course great things are claimed for it, but only time and use can determine its true value. Peroxide of hydrogen is another agent that is extensively used for both its antiseptic and disinfectant properties. It is said to instantly arrest fermentations due to the development of living organisms, and the putrefaction of all materials which do not

decompose it. But, as it is rapidly destroyed by so many substances, its application would seem to be limited. When diluted with water and used in connection with prepared chalk, it is excellent as a dentifrice. A good preparation, combining antiseptic properties with a perfume, to drop into our cuspadors after cleansing, is the following :

R

Eu de cologne	-	-	-	-	-	-	8 fl. oz.
Peroxide of hydrogen	-	-	-	-	-	-	1 drachm.
Chloral hydrate	-	-	-	-	-	-	2 "
Quinine (alkaloid)	-	-	-	-	-	-	10 grains.
Carbolic acid (pure)	-	-	-	-	-	-	30 "
Oil of lavender	-	-	-	-	-	-	20 drops.
—Mix.							

Generally, antiseptics can be used with good effect in many cases; but the disinfectants—those that can be used with safety—mostly fail to disinfect, so too much reliance should not be placed upon them. Suitable precautions should be taken to render their use unnecessary; impure air should never be breathed, nor should preventable causes be allowed to pollute the air. Decay and decomposition can usually be prevented by antiseptics, if in no other way, for it is much easier to prevent putrefaction from setting in than to check its progress after it has once begun.

A PLEA FOR EDUCATION.

BY GEO. L. PAINE, D.D.S., XENIA, O.

[Read before the Mad River Valley Dental Society.]

LORD BACON says: "I hold every man a debtor to his profession from the which, as men of course do seek to receive countenance and profit, so ought they of duty to endeavor themselves, by way of amends, to be a help and ornament thereunto."

A profession is that of which one professes knowledge—if not mechanical—and to which one devotes himself; the business which one professes to understand, and follows for a subsistence. The business of a lawyer, or physician, is professional. The learned professions are theology, law, medicine, and dentistry.

Every man, according to our text from Bacon, owes a duty

to the profession of which he is a member, *i. e.*, to be to it both helpful and ornamental. To be helpful is to afford assistance, when called upon, and implies that both mental and physical resources are at the command of the helper, whose efficiency can be measured only by the limitations of his education, which is the training of his physical and intellectual powers.

That the best results may be attained in all respects, the physical powers must be trained, thus securing the highest degree of health and consequent physical vigor and efficiency. Without health the most elaborate mental culture is, to a great extent, a failure; thus verifying the truth of the adage: "*Mens sana in corpore sano.*"

Candidates for distinction in all professions, and especially in the dental, should possess, *de naturá*, a fine physique, not only to enable them successfully to perform the tasks demanded of them as students in college or university, but also to enable them to endure the arduous labors and nervous tension incident to the practice of their profession.

It is evident, therefore, that a sound and healthy physique is an indispensable factor to him who hopes to win honor and emolument in the practice of a profession.

Having defined what constitutes our ideal candidate for professional life, we proceed to summarize what should constitute his mental outfit, or educational equipment. That every aspirant for professional honors should be well educated before he enters upon the study of his profession proper, is a proposition not likely to be disputed by any one whose opinion is entitled to respect. The demand made by the best men of our times is that those who intend to study any profession be thoroughly drilled in the classics, and, if possible, in German and French, as well as in those branches of science which have a direct bearing on the profession that the student expects to enter.

This education is as essential to the professional man as a knowledge of the manual of arms is to the soldier, as it enables him readily to comprehend the principles, and successfully to master the details of his life work.

The mental as well as the physical faculties demand severe training, and will not do effective work without it. Every faculty of the mind may be likened to a tool which one must be taught how to use, and to keep in good order.

One may be said to be educated when his faculties, like well drilled soldiers, respond promptly to the calls of duty, and are always ready for active and useful service.

Our candidate, with a training such as we have outlined, is ready to enter upon the study of his chosen profession. Other things being equal, he will gain a more comprehensive knowledge of his profession, than a comparatively uneducated person, and gain it more easily.

Thus, with educated head and hand, he enters upon his life-work; and how great the fruitage!

How transcendently beautiful are the sculptured creations of a Powers or a Canova, or the paintings of a Rembrandt or a Titian, with cultivated brains guiding the chisels of the one and the brushes of the other!

So, by parity of reasoning, we may infer that, when natural ability is supplemented by the skill imparted by education, and our efforts are directed by studious and scholarly men, the results must be correspondent, not only to the text of my Lord Bacon, but also to the ideals of the most artistic and poetic of our profession.

AN OLD VULCANITE PLATE.

BY GEORGE WATT.

[Read before the Mad River Valley Dental Society.]

IN 1856, in the month of August, the American Dental Convention met in Hope Chapel, New York. Amid a group of dentists outside of the chapel, before the meeting was called to order, we found an enthusiastic man, zealously advocating the introduction of a new kind of dental plate, a specimen of which he was wearing. He would take his plate out to show it, put it back to answer questions, snatch it out again, and again return it, almost as fast as one could count the changes. We watched our opportunity, and then and there, amid a brief interview, we got our first sight of a vulcanite dental plate. At the same time we made an arrangement with him to pack and vulcanize a plate for us; and we fitted the teeth, antagonized them with the patient's under ones, sent the case to our newly acquired friend, who made the mold, packed and vulcanized, and sent the denture to us by

express. He told us that there were but two dental vulcanizers in America at that time, one in New Haven, and the other in New York; and he stated that ours was probably the first vulcanite plate made for practical use west of the Alleghenies. The plate was worn, and constantly used something over sixteen years. The patient died in 1873, of a putrid form of erysipelas, and the lips were so destroyed that the plate could not be replaced in the mouth by non-professional friends, and no others were present. If a sight of this plate will be of any interest to you as an historical relic, it affords us pleasure to show it to you, simply informing you that it is vulcanized gutta-percha, which, as you see, is still in good condition.

“WHAT SHALL THE HARVEST BE?”

BY C. EDMUND KELLS, JR.

[An Address to the New Orleans Odontological Society, at an Anniversary Dinner.]

Mr. President and Gentlemen:

SOME men are born to misfortune—others start well in life, but later on rush headlong to destruction. Some few men seek fame and fortune, but the majority of statesmen have both thrust upon them by an admiring constituency. Some men know when they are well off and stay there, giving thanks to a beneficent Providence for the many blessings showered upon them. Others, alas! go prowling around, join Odontological Societies, and, lo! one of them, for his fool-hardiness, is chosen speaker at the Annual Dinner? Well may we say, “What shall the harvest be?”

Fifty years, to some of us, may seem a very long time, and yet, many men, to-day, can turn back in their memories, and recall the world as it appeared to them half a century ago. And what do they see? A people who employed or enjoyed their evenings under the flickering rays of the tallow candle! A people who occupied days in staging through the country in coaches. A people to whom matches were unknown, and upon whose generous hearthstone the embers were never allowed to die. A people by whom the idea of the instantaneous transmission of messages across the Continent would have been considered the

machinations of the Evil One! A people by whom a weekly paper, containing news a month or two old, was all that could be expected! A people, though, of whom many were deep thinkers, earnest workers, constant investigators, and who were not satisfied with all things, just as they were handed down to them, by their fathers and grandfathers! Hours were devoted to experiments; old methods improved upon, new ones discovered, and the spirit of unrest transmitted to their children in an intensified degree. These, in turn, took up the task, and gradually the mechanical arts were mastered to depths before unknown. Science progressed, new discoveries were made, invention quickly followed invention. A vast field presented, gigantic schemes were planned and carried out successfully. All industries grew and multiplied under this mighty impetus. The earth, itself, as if imbued with the spirit of rivalry, gave forth its treasures of coal and oil, of gold and iron, to an unprecedented extent? Drones looked upon the transformation occurring upon all sides, day by day, and attributed them to "genius." Mistaken idea! There is no such "gift" as "genius." Point me out a so-called genius, and I will show you in him a man of talent, backed by an indomitable will, and wonderful powers of endurance.

The iron horse now bounds along his way of threaded steel, as swiftly as the eagle comes through the air. Through its agency the various products of the soil of different climes are quickly interchanged. Of that greatest blessing to man—the *Mail*—it is the prompt and faithful carrier. To it, more than to any other agency, have the thousands and millions of acres of our fertile western lands been opened up to emigration. Its advent marked a new era in the world's history—the dawn of a higher civilization.

The modern steamer has become a marvel of power, and size and swiftness. Could Robert Fulton reappear to-day, as Rip-Van-Winkle of old, and standing upon the water's edge, gaze upon the "Alaska," or the "Oregon," he would hardly dare recognize in them, the outcome of his great invention.

Show me a *genius*, and I will take you to his study, or his workshop, in the small hours of the night, and you will find him at his books, or his work! Some few great discoveries may have been stumbled upon, it is true; but rest assured they were lying across the steep and rugged paths trodden upon only by earnest

workers. The wonderful results accomplished in this half-century are apparent to us, upon all sides, to-day. Did the people of the nineteenth century follow the customs of their forefathers, who raised unto themselves brazen images, in the wilderness, they would build shrines to those wonders of the age, *steam and electricity*, and fall at their feet in worship, as to their gods! For at present, nearly all the comforts and luxuries of life are served us by those two potent forces.

The "Man in the Moon" looks down upon this world of ours, and seeing the network of metal fibres strung in mid-air from city to city, from ocean to ocean, from the gulf to the lakes, wonders if the yellow fever germ has evolutionized into some form of huge spider, and is preparing to catch the whole world in his meshes at once.

By the lightning's flash loving messages may be sent from continent to continent in the twinkle of an eye. The voice itself heard leagues and leagues away. This is, indeed, the electrical age. That wonderful, incomprehensible power, that has baffled the understanding of man, and yet yields to his iron will, an obedient and ever ready slave to his commands. Unseen itself, look upon all sides and behold the convincing proofs of its existence. Its ever watchful eye guards our treasure in the faithful manner no human being would. In times of danger from conflagration, it promptly summons the fearless firemen to the immediate scenes of danger, thereby saving countless lives and millions of property.

In the march of progress the tallow candle gave way to petroleum, which in turn was superseded by gas. Now we are but learning that it has had its day, as far as city illumination is concerned, and the hundreds of bright electric lights which already rival the moon in power, and charm the eye by their dazzling brilliancy and great beauty, will multiply upon themselves, time and time again, until our streets will enjoy perpetual day. No idle dream is this: As the sun sinks behind the western horizon and warns the grateful laborer of the approaching hours of his rest, it but calls up a great class of men whose day's duty is but to commence. In yonder building, to which centre this vast network of wires, leading through every avenue and street and park of the great city, has been sleeping all day, a monster who now awakes, throbs and pulsates in its ponderous yet rhythmical manner.

The mystical "dynamo," in turn, makes its countless revolutions, and the magic fluid flashes along the numerous safely guarded channels, and bursts upon the city instantaneously from a thousand brilliant centres, casting their sparkling scintillations upon all around. No dark nooks to harbor evil-doers—the community sleeps in undisturbed peace. Gradually the night wears on—the myriads of stars grow fainter and less distinct—a faint streak of light is seen in the east; slowly it grows brighter and brighter. A lever is moved; the great wheel moves slower and slower, and finally ceases its revolutions; the hundreds of brilliants flicker and die out; to the vast system comes the hour of rest. The contract for light is turned over to his majesty the sun, just as he appears to view, clothed in royal colors in the far east.

In the arts and sciences the applications of electricity are becoming more and more numerous every day. Our morning paper has now become indispensable, and the occurrences of the whole world upon the previous day must be laid before us with our morning meal. "The pen is mightier than the sword," was said long ago; and true it is that the power of "the Press" has progressed with the times, and was never more keenly felt than to-day, when the great "dailies" find their way into every little town and hamlet, and wield their influence therein.

In the science of medicine, electricity plays no unimportant part. A hypochondriac is given several "shocks" daily, for a month or so, when he gladly persuades himself cured rather than continue the dreadful ordeal. The electric corset and galvanic belt are in the ascendancy, the liver pad is on the wane. A dainty tube, carrying its complement of fixed mirrors, reflectors, wires and chains, and at its extremity a minute electric lamp, can be lowered into your stomach, and the depths of that unseen (though not unfelt) region unfolded to view!

It is not long since dentistry held no enviable position of its own. Its ranks were filled with men who guarded their methods from their confreres with jealous care. What one man discovered he kept religiously to himself, and so along the whole line the science groped on in darkness. Suddenly a revulsion of feeling came; men began to take counsel of each other, societies were formed, and discussions allowed the dissemination and interchange of ideas; colleges sprang up, journals were published, and the good work carried on. The "bright lights" of the profession

were now as anxious to give to the world their appliances and contrivances as before they had been careful to keep them to themselves. Under such auspices the science grew and continued to grow until to-day, when some of the brightest minds and readiest hands are found in the front rank of the profession, and the public appreciate its position. In no field has more progress been made, better results obtained, or inventive talent been more fully displayed.

With these wondrous results to be seen upon all sides, the welfare of mankind advanced by such rapid strides in fifty years, and the world still moving, our brightest anticipations will doubtless fall short of what in reality the harvest will be,

As for our particular selves, each day will see some advancement in knowledge obtained, or appliances used. With painlessening discoveries being constantly made, it does not require any elaboration of arguments to convince one of the possibility of figuring out the exact era when a two-hour sitting in a dental chair will be looked forward to with pleasure, and tooth-filling and extracting parties may be gotten up by the fashionable people of future generations, when, in their desperate attempts at some new diversion, they are driven to them as a novelty. No longer, then, will unruly children be brought to submission by the threat of a visit to the dentist!

Chemistry and microscopy have buckled on their armor, and, jealous of the fame of Horatio, at the Bridge of Rome, propose to attack the millions of long named bacteria we hear so much about, and of which we know so little.

Fortunately for the profession, a kindly Providence has taken it under its especial care, and no sooner is one cause of disease discovered and mastered than another appears. I say fortunately this, and mean it, too; otherwise it would be but a question of time that, all disease conquered, a healthy race would ensue, and dentistry would soon become as one of the lost arts of the Egyptians.

But the dental profession has now a sword heavier and more menacing than that of Damocles suspended over its head, and unless Providence steps in and gives us a special dispensation with which to avert the tide, we shall be swept away to oblivion, so to speak. For slowly, but surely, the number of teeth in individual members of the human race is lessening. Darwin has

proved the rise of man—follow his successive ascensions in the scale, and notice the accompanying regularity in the decrease of the dental organs. For some time past the number has remained at thirty-two, but in the recent higher development of the species, the “dude,” there is no sign of the third molar, or wisdom tooth. (You may draw your own inferences.) Thus, the number is reduced to twenty-eight, four less to prey upon! Conceding the loss of one tooth in every succeeding century of the development of man, however much we may consider ourselves unappreciated, we may at least congratulate each other upon not being contemporaneous with the attenuated creatures of the twenty-seventh century.

Gentlemen, we have gathered around this table to celebrate our third anniversary. When our little association was formed, three years’ ago, little did we know what the harvest would be. To-day, I look around me and see each familiar face that was with us then. In that respect we have reaped a good one indeed. The roll stands now as it did then, unaltered and unchanged. That we have each been professionally benefited by our regular monthly meetings, I feel assured. The papers there brought to our notice are bound to give us new ideas, and the discussions in which we all take part and become interested, must redound to our personal advantage. Let us hope the future has in store for us many more of such as we have had in the past.

What I have said in regard to our regular meetings is equally applicable to our annual reunions heretofore held. Differing vastly from the former in topics for discussion, the change is very acceptable to us all. After a day of toil and fasting we have turned our backs upon our usual scenes of labor, have come out here upon the borders of old Pontchartrain, where amongst these old oaks and magnolias we place ourselves in the hands of our committee, eagerly wondering

“What shall the harvest be?”

At the close of this address, which was loudly applauded, the dinner was announced and attracted universal attention for a long time, the dishes being seasoned by the wisdom, wit, the good humor and good cheer which abounded on all sides.

When mind and body had been together brought to a state of thorough comfort, President Adams rose and said that he was glad to be able to congratulate the association on its high state of

prosperity and efficiency. The monthly meetings of the association were always well attended and the members had read papers before it that had attracted attention on both sides of the Atlantic. He could say that the association had been of great service to individual members, and had tended to promote among them all a high degree of professional courtesy and *esprit de corps*.

Correspondence.

"I charge you that this epistle be read."

Editor of Ohio State Journal of Dental Science:

IN the May number of the *Dental Cosmos*, the first illustration and description of "Dr. Logan's Tooth Crown," is given, accompanied by a similar illustration of an *alleged* improvement or "modification," by Dr. Richmond. Following this in the June *Dental Cosmos*, in a report of the proceedings of the "First District Dental Society of New York," Dr. Richmond is reported as "exhibiting a new method of setting artificial crowns," etc., which is evidently the "Logan Tooth Crown," *modified*, without reference being made or credit given to Dr. Logan; and the natural inference would be that Dr. Richmond was the originator of said crown.

Having no personal acquaintance with Dr. R., and no personal interest, pecuniarily or otherwise, in this or any other "Tooth Crown," I feel impelled only by a motive of simple justice to Dr. Logan, to make the following statement, and in so doing would not desire to detract anything from the *inventive genius* of our friend Dr. Richmond, were it not apparent that Dr. Logan is unquestionably deprived of enjoying the credit due him from the profession, to which he is justly entitled; and further, that protection is sought by enshrouding said "modification" in those mysterious words, "Patent applied for."

I have enjoyed social and professional relations with Dr. Logan the past fifteen years, and believe that I was one, if not the first of his professional friends to whom he submitted his "Tooth Crown" for examination, and of whom he solicited an opinion as to its merits and demerits. This was several years

ago, at which time it was suggested to him that the platinum pin be made triangular or *square*, in order to obviate any possibility of rotation, and also the idea of having said crown made with a "palatal or lingual" opening at the neck of the crown, in order to give free exit to any surplus material. With the exception of the first four crowns made, all have been made with the *triangular pin*, and yet his crown is described as having a "round pin," as to which it is a matter of no importance when we consider that the opening in the crown surrounding the pin is made square, and the root anchorage being made to correspond, entirely overcomes the possibility of any rotation without the breakage of filling material, in which event a square pin would not act as a preventive. Singular as it may seem, do we not here recognize a virtual anticipation of the modification, "*Patent applied for*," while the suggestions above referred to were given to Dr. Logan in a professional manner, and at that time were believed to be an improvement, or "modification," worthy of adoption. It was not then, nor is it now recognized as of such vital importance as to demand the protective right, "*Patent applied for*;" and as priority of invention establishes the right or claim to any patentable invention, improvement, or "*modification*." Should any doubt arise as to the correctness of the foregoing statements, affidavits can be submitted, or a patient exhibited who has enjoyed the use of one of these "modified tooth crowns" for almost two years.

Were it not for Dr. Logan's well known reticence, and a modesty which (perhaps unfortunately), we do not all possess, he would undoubtedly speak for himself upon this occasion, and thereby obviate any necessity for the intervention of a professional friend in establishing the claim, that the credit of the "Logan Tooth Crown and *Modification*," is by right and title, legal and professional, the property of Dr. M. L. Logan, of Tyrone, Penn.

Respectfully Submitted,

WM. B. MILLER, D.D.S.,

Altoona, Penn.

A good book or paper, one elevating and inspiring, is an invaluable friend whose companionship is always accessible and whose counsel is receivable, inasmuch as it does not rouse the combative in the spirit.

Editor's Specials.

"Write the Vision and make it plain."

AN IMPORTANT DECISION.

SUPREME COURT OF ILLINOIS.

OPINION FILED MAY 19, 1884.

THE PEOPLE OF THE STATE OF ILLINOIS EX REL. ISAAC A. SHEPARD v. THE ILLINOIS STATE BOARD OF DENTAL EXAMINERS.

Petition for Mandamus.

POWER OF BOARD—LICENSE TO PRACTICE DENTISTRY.

1. *Held*, that the board has the power to determine whether the applicant for license has graduated from a "reputable dental college;" that in making this determination it acts in a judicial capacity, and from its decision in this respect there is no appeal.

2. *MANDAMUS*.—That in certain cases, the court could by mandamus compel the board to act, but it could not compel it to act in a particular manner.—[ED. CHICAGO LEGAL NEWS.]

Opinion by SCHOLFIELD, J.—It is provided by the first section of an act approved May 30, 1881, entitled "An act to insure the better education of practitioners of dental surgery, and to regulate the practice of dentistry in the State of Illinois," "that it shall be unlawful for any person who is not at the time of the passage of this act engaged in the practice of dentistry in this State, to commence such practice unless such person shall have received a diploma from the faculty of some reputable dental college, duly authorized by the laws of this State, or of some other of the United States, or by the laws of some foreign country, in which college or colleges, there was at the time of the issue of such diploma, annually delivered a full course of lectures and instruction in dental surgery. * * *." And in the sixth section of the same act, after providing for examination, before the board of dental examiners, of all applicants for license to practice dentistry, is the following provision: "But said board shall, at all times, issue a license to any regular graduate of any reputable dental college without examination upon the payment of such graduate, to the said board, of a fee of one dollar * * *."

Other provisions of the act prohibit any person to practice dentistry without a license from the board, except such as are properly enrolled as having been practitioners at the time of the

passage of the act. The contention of the relator is that the board of dental examiners have no power to decide what is or what is not a "reputable dental college;" that the law has, itself, defined what is a "reputable dental college," in providing that it shall be "duly authorized by the laws of this State, or some other of the United States, or by the laws of some foreign country, in which college * * there was at the time of the issue of such diploma, annually delivered a full course of lectures and instructions in dental surgery."

We are unable to appreciate the force of this position. The word "reputable" would seem to be used here to express the meaning ordinarily attached to it. If it had been intended that a diploma from any dental college "duly authorized by the laws of this State, or some other of the United States, or by the laws of some foreign country, in which college * * there was at the time of the issue of such diploma, annually delivered a full course of lectures and instructions in dental surgery," we must presume the language would have so said. By using the word "reputable" we must presume the General Assembly meant "reputable." And since it is not used as being the equivalent and convertible for the other requirements in regard to the college, but as in addition thereto, we must presume it was intended to be so construed. As a part of the current history of the times and as an aid in arriving at the legislative intention, we know there were colleges of different kinds, authorized by the laws of States in which they were located, in which there were pretended to be annually delivered full courses of lectures and instructions upon the arts and sciences professed to be taught, that were not "reputable," because they graduated for money frequently without any reference to scholarship. A diploma from such an institution afforded no evidence of scholarship or attainments in its holder. It was a fraud and deserved no respect from anybody. And it was as against such diplomas the law was intended to protect the public, and therefore required that the colleges be "reputable." Whether a college be reputable or not is not a legal question but a question of fact. So also are the requirements in regard to the actual delivery of full courses of lectures and instructions. These questions of fact are, by the act, submitted to the decision of the board—not in so many words, but by the plainest and most necessary implication. Their action is to

be predicated upon the existence of the requisite facts, and no other tribunal is authorized to investigate them. And of necessity therefore they must do so. The act of ascertaining and determining what are the facts, is in its nature judicial. It involves investigation, judgment and discretion. The office of the writ of mandamus is in general to compel the performance of mere ministerial acts prescribed by law. It lies however also to subordinate judicial tribunals to compel them to act where it is their duty to act, but never to require them to decide in a particular manner. It is not like a writ of error or appeal, a remedy for erroneous decisions: *Judges of Oneida Common Pleas v. People*, 18 Wendell, 92. And as is said by the court in *People ex rel. v. Com. Council of Troy*, 78 N. Y. 33, this principle applies to every case where the duty, performance of which is sought to be compelled, is in its nature judicial, or involves the exercise of judicial power or discretion, irrespective of the general character of the officer or body to which the writ is addressed. A subordinate body can be directed to act, but not how to act, in a matter as to which it has the right to exercise its judgment. The character of the duty, and not that of the body or officers, determines how far performance of the duty may be enforced by mandamus.

Where a subordinate body is vested with power to determine a question of fact, the duty is judicial, and though it can be compelled by mandamus to determine the fact, it cannot be directed to decide it in a particular way, however clearly it be made to appear what the decision ought to be.

See also *Kelly et al. v. City of Chicago*, 62 Ill. 279.

Illustrations of the principle will be found in *People v. Com. Council of Troy supra*; *Freeman v. Selectmen*, etc., 34 Conn. 406; *Hoole v. Kinkead*, 17 Nevada, 217; *Bailey v. Ewart*, 52 Iowa, 111; *Berryman v. Perkins*, 55 Cal. 483; *People v. Contracting Board*, 27 N. Y. 378, and other cases cited in argument by the attorney-general.

The demurrer here does not admit that the board of dental examiners found that the college at which the relator was graduated was reputable, although it does admit that to be the fact. But since the board cannot be compelled to decide the question that way, although the evidence might clearly sustain it in doing so, there is no ground for mandamus.

The demurrer must be sustained and the petition dismissed.
Petition dismissed.

The above decision is taken from a copy of the *Chicago Legal News*, dated June 7th, 1884.

We can not learn from the document which of the dental colleges is specially interested in this decision. The law in Illinois seems to have a provision different from anything in the Ohio law. Here, if we understand it, a man with a diploma comes in and practices without any special license from the Board of Examiners; but in Illinois he cannot begin practice legally till licensed by the Board. And the Board is required to licence him without examination if he has a diploma from a *reputable dental college*. But there is the question. Who is to decide as to whether or not the college is reputable? This decision says the Board, and that from its decision there is no appeal. This looks like giving the Board a high degree of power and responsibility. But who is to decide if not the Board? If a college can force a Board to license those who hold its diplomas, why not the Board force the college to confer degrees on its licensees? "What is sauce for the goose is sauce for the gander," ("or words to that effect").

Besides, if the Board can be forced to recognize the act of one college, why not that of another? And where will the stopping place be found? This side or beyond the Wisconsin, Paine, or Buchanan diploma mills?

We suppose the intent of the law is the protection of the public; but how can it protect if the Board cannot go "behind the returns,"—behind the diploma to inquire into the reputation of the college issuing it. We think this decision is just, and will stand the test of time. Another Board may recognize the college in question; and it may be that the Illinois Board should have recognized it. We are not posted on the question; but we suppose it will not be worth while to try to coerce a Board through the Courts.

HISTORY OF AN ARTIFICIAL TOOTH.

At the late meeting of the Mad River Valley Dental Association, Dr. Satterthwaite exhibited a tooth at the evening session which he said he had received from Taft and Watt about 1853. From carving blocks, about the period spoken of, we turned our attention to making a few teeth for our own use, mainly because

we could not get the size, shape and colors wanted in many cases, from the artificial teeth in market. Dr. S. stated that he had preserved this tooth as a relic, and that he regarded the gum color as the most natural he had seen. As gas light would not give a proper view of the enamels, we requested the opportunity of seeing the tooth by daylight, and he kindly loaned it to us. We are not ashamed of the gum color. For all the enamels we prepared the coloring materials. Indeed, we may say that we took everything from the rough. We ground the spar, silex, etc., and prepared the chemicals. This gum color is obtained by using the purple of Cassius in connection with teroxide of gold. The bluish tint near the cutting edge was prepared directly from platinum filings; and the yellowish tinge is due to the oxide of titanium. We obtained our own formulas by direct experimentation, and the record of them was burned in B.'s joke.

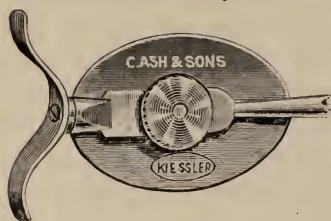
We carved our own molds from solid brass, without patterns, and in making this tooth, the enamels were molded on the tooth as it was molded. We were not then aware that enamels were put on otherwise than by pencil brushes.

We didn't make our experiments profitable except that they enabled us to adapt teeth to any features presenting. Upon the whole, we were pleased to see the old tooth, and thank Dr. Satterthwaite for giving us the pleasure.

A NEW INSTRUMENT.

HERE is a cut of Dr. A. A. Blount's mouth-glass and cheek-holder combined. Our readers may learn a point on protective tariff operations when we tell them that though Dr. B. prepaid the transportation by express, yet it cost \$4.75 to get it through the custom house. (This sum was generously ordered refunded to us by the Mad River Valley Dental Society, in whose organization Dr. B. took the first step. He requested us to "submit it to the members of our 'dear old Mad River Society,' which I see is to meet at Dayton.") It gave us pleasure, of course, to comply with his request, even though we were not expecting any pecuniary reward for doing so.

It will be seen by the cut that the cheek-holder is attached to the back of the mouth-glass, and it turns on the central pivot to any desired direction, where it can be fastened by a set-screw.



Dr. Blount says of it: "I have been using it for two years with much satisfaction. It takes some little experience to know just how to use it to the best advantage, but there are cases where it is indispensable—as for example, in molars and bicuspsids, *posterior cavities*, especially on the right side of the mouth, when one must hold the cheek away in order to obtain an unobstructed view. There are many dentists who fill teeth altogether by reflection in the mouth mirror. For these this combination is valuable. One can hold down the napkin, paper, cheek, or the tongue, and see what he is doing." He adds, further down, "As you have the idea, there are many little traps that can be applied to the mouth mirror by this means that will be useful to the dentist."

Of course we cannot give the instrument a practical trial; but we are very favorably impressed by its appearance. We believe Dr. B. has gotten up a good thing.

SOME INFORMATION GAINED.

ON page 294 of our June number we asked for information as to a reported death from the use of nitrous oxide. The patient said to have died from the anæsthetic was called "Kate Emmer." Now we have before us a letter dated July 1st, 1884, written to us by Dr. A. Gants, of Ligonier, Indiana, in which he says the case "was alluded to by the *Leader*, a weekly paper published in this place. In answer to this, a letter from the postmaster at Riverside, N. J., says that there is no one living there by that name, and no such accident has taken place."

We cordially thank Dr. G. for the information.

THE compiler of the *Aftermath* has for this number a full full supply of first-class matter, but something had to be crowded out and such seemed to be its fate. It will not spoil. Look for it in the future.

Societies.

"Wherewith one may edify another."

SYNOPSIS OF THE ANNUAL MEETING OF THE ILLINOIS STATE DENTAL SOCIETY.

THE Society met May 13th, at 10 o'clock A.M., in the State-House, at Springfield. The President, Dr. E. NOYES, of Chicago, in the chair.

The meeting opened with prayer, by the REV. R. O. POST. After some miscellaneous business, the reports of the Executive Committee, Treasurer, and Secretary, were presented.

The President now delivered his annual address, which contained much valuable information. His suggestions in regard to the special work of the association, were highly appreciated; and, in order to bring them into the work more fully, a committee of three, consisting of Drs. Cushing, Kitchen, and Black, were appointed to report to the society. Papers were called for, but none were at hand; they were promised for the afternoon. The initiation fee was reduced from \$7 to \$5. The standard of admission was raised. The examining committees were instructed to make their work conform to this requirement.

An invitation was received to visit Lincoln's monument, at the convenience of the society. The invitation was accepted.

Adjourned.

AFTERNOON SESSION.

The meeting opened by prayer, at the usual hour; and after miscellaneous business, a paper was read by Dr. Duncan, on "Exposed Pulps." The paper was discussed by Drs. Crouse, of Chicago, Patrick, Townsend, Nelson, and Eames. These discussions occupied the whole afternoon.

Adjourned.

SECOND DAY—MORNING SESSION.

The Society met at 9:30, with a greatly increased attendance, there being over 100 active members present, and a large number of visitors.

The minutes of the previous meeting were read, after which the following persons were elected, to serve upon the Executive Committee, for the following year, namely, Dr. Pollock, of Sterling, chairman, and Dr. C. F. Mattison, of Chicago. The third member to be chosen later.

Mrs. DR. MOODY, of Mendota, read a paper on "Reflex Pain." The paper was one evincing much thought and study. It showed that the author was quite familiar with her subject. She spoke of various nerve affections. As to remedies she spoke highly of gelseminum, in five to twenty drop doses, for direct pain from the branches of the fifth pair; and quinine for reflex pain. She referred at some length to various causes of reflex pain.

In discussion of the paper, Dr. Freeman, of Chicago, cited a few cases. The first was one of reflex pain, upon the uterus, from the teeth.

The lady came to him, having all her teeth quite loose, and desired them extracted. He thought upon the case for a few days, consulted her husband, and refused to remove them. In three months the teeth were firm, and there was a complete return of health.

In another case, a little child, when teething, had persistent diarrhoea, for a long time. He prescribed laudanum and castor-oil. The bowels were restored to healthy action. Chorea set in, he hoped that this would soon pass away, as he had incised the gums.

In another case, the patient had some amalgam fillings. After a considerable time, the masseter muscle became contracted and rigid. A magnetic doctor examined the case, and removed the third molar tooth, which seemed to be the cause, when the difficulty was relieved.

DR. G. V. BLACK regards neuralgia as occurring from perverted vaso-motor action, in which there is interrupted blood supply to the part; this causes a nerve tension, which results in neuralgia.

DR. PATRICK regards Jamaica dog-wood, ten to twenty drops, as preferable to gelseminum; regards it as safer and better. The paper was further discussed by Drs. Townsend, Sitherwood, and Noyes.

PROF. EAMES, of St. Louis, read a paper on the "Origin of Defective Tooth Structure." The paper was one of great interest,

and pursued a line of thought, eminently practical. The subject is one that ought to have received more attention on the part of the profession than it has hitherto.

Miscellaneous business was now called. DR. BLACK moved that a committee of three be appointed to take into consideration the propriety of establishing an association journal, to be controlled, and managed jointly by the Illinois and Chicago Dental Societies.

Adjourned.

SECOND DAY—AFTERNOON SESSION.

The Society met at 2:30. After some routine business, four new members were elected, as follows: A. E. Burrows, of Walnut; F. H. McIntosh, of Bloomington; Robert Gabel, of Lincoln; R. H. Mace, of Belleville.

DR. DEAN, of Des Moines, Iowa, was elected an honorary member.

A motion was adopted to reconsider a resolution, recommending a beneficiary student to the Baltimore Dental College. The subject was then referred to the committee of examiners.

Following this, DR. HOMER JUDD, of Alton, read a paper, which proved to be very interesting. The subject was on Inflammation. It called forth considerable discussion.

An invitation was extended to the members of the association, by Mr. Oldroyd, to visit Lincoln's old home, which was accepted, and the visit made at 5 o'clock, upon adjournment.

This proved to be a very interesting occasion; as a great many relics of his home and time are kept there; many things to call to memory the time from 1860 to 1864.

Adjourned.

SECOND DAY—EVENING SESSION.

Association met at 8 o'clock. After some routine business DR. WILL. X. SUDDUTH, of Bloomington, read a paper on "Dento-Embryonal Histology," which attracted special attention. The paper was discussed somewhat, but not in a manner to be reported.

Miscellaneous business was now taken up, when arrangements were made for clinics, from 8:30 to 12:30, next morning.

Adjourned.

THIRD DAY—MORNING SESSION.

The entire morning was devoted to clinics, in which there were ten or twelve operators. Various styles of filling were demonstrated, and different methods of inserting artificial crowns.

DR. J. A. SWASEY, of Chicago, illustrated his method of filling, in an operation on a left inferior molar, with a large and complicated cavity. He used Robinson's filling, finishing with gold foil, Nos. 4 and 10. The operation was made for the purpose of showing that the combination of these materials makes a better filling in the teeth with conical walls, and require large contour, than either material alone.

DR. JAMES G. REID, of Chicago, demonstrated his method of filling roots with a preparation of gutta percha, dissolved in chloroform. He selected a first inferior left molar. Owing to its unfavorable situation, it was a difficult tooth to operate upon. The moisture was not easily excluded. The result, however, was an entirely satisfactory operation. This is not a new method of filling roots, but Dr. Reid showed great skill and facility in the performance of the operation. This is regarded as the best method for filling roots that has ever been devised.

DR. E. HONSINGER, of Chicago, operated on an inferior second molar, with a posterior cavity. Watts' crystal gold was used, and over two hours' time was occupied. The result was a beautiful operation, and one that seemed, in all respects, well nigh perfect.

DR. H. H. TOWNSEND, of Pontiac, operated on a superior left first bicuspid, from which the pulp had been removed. The canal was filled with gutta percha. The cavity was upon the posterior, and across the grinding surface. The operation was made with care, and it presented an excellent appearance.

DR. E. D. SWAIN, of Chicago, operated upon an inferior molar, the cavity of which extended considerably below the margin of the gum. The tooth was restored to its original shape and size.

In these, and in nearly all the operations performed, a highly gratifying precision and delicacy of manipulation were manifested. There is evidently in the profession a recognition of the fact that more care and delicacy in manipulation are required than was formerly thought necessary. The clinic closed at one o'clock.

Adjourned.

AFTERNOON SESSION.

Association met at 2:30. Miscellaneous business was in order. On motion, Dr. Judd was reinstated to active membership, with remission of dues.

The first business in regular order was the reading of a paper, by DR. TAGGART, on Chemistry. The doctor had on his table quite an array of chemical apparatus, by which he was able to illustrate the points he presented in his paper. He made tests of some of the medicinal agents in daily use by the dentists, such as arsenious acid, creosote, carbolic acid, chloroform, ether, etc. He discussed the method of preparing oxyphosphate of zinc, for plastic filling. The paper, with the experiments given, contained a large amount of valuable information. Some discussion was had upon the paper. It took the form more, however, of a quiz of Dr. Taggart, with the view of bringing out some points that had not been understood by some of the members.

This was an innovation upon the ordinary method of discussion, but of course it was perfectly admissible, and perhaps if there was more questioning under such circumstances, there would be a better apprehension of what is presented than is many a time the case.

DR. BLACK read a paper on Specialists and Specialties. This, as is everything from Dr. Black's pen, was very interesting, and received the closest attention of the members. After this, Dr. Patrick delivered an address, which, he termed, A Few Stray Leaves on Dental Education.

The committee (Drs. Stone and Koch) on new dental appliances and inventions, reported that quite a number had been presented. They then proceeded to bring them before the society; explaining and making clear the use of each one. There were quite a number of new and valuable appliances.

Adjourned.

EVENING SESSION.

The evening was devoted to the presentation, with the stereopticon, of specimens illustrating dento-embryology, by Dr. Will. X. Sudduth, of Bloomington. About 75 illustrations were thrown upon the screen, which received proper explanation. About three hours were occupied in this work. To the doctor is due many

thanks, and the appreciation of the profession for the very thorough, and effective work he has accomplished in this direction. This mode of illustration should be used more than it is.

Many people comprehend more readily by an appeal to the eye than to the ear.

Adjourned.

FOURTH DAY—MORNING SESSION.

After routine business, Dr. R. E. Koch, of Chicago, read a paper, entitled The Illinois Dental Society—What it has Accomplished. The paper traced the history of the organization, told of its achievements, and showed a great effort on the part of the Society, and that it has been a power for good in the State of Illinois, and also that its influence had been felt outside of the State.

He thought that all the members were fully entitled to entertain a feeling of gratification for all that has been done by the body.

On motion of Dr. Black—*Resolved*, That a supervisor of clinics be appointed, whose duty it shall be to arrange for and have control of the clinics. That at the annual meeting he shall also make a report upon past clinics, with the view of illustrating the progress attained.

The election of officers for the ensuing year was now declared to be in order, which being had, Dr. H. H. Townsend, of Pontiac, was elected President; Dr. M. H. Patton, of Springfield, Vice-President; Dr. J. W. Wassall, of Chicago, Secretary; Dr. Dwight, Danville, Treasurer.

The next annual meeting is to be held at Peoria.

A vote of thanks was extended to various parties; namely, proprietors of the Leland Hotel, railroad companies, and Secretary of State, Mr. Dement, for the use of the Senate Chamber.

Adjourned.

By an arrangement for exchange of matter with Dr. Taft, we use the above synopsis, which was prepared by him. It was intended to have it in the July number, but by a little misunderstanding, caused by delay in the mails, it had to lie over. The main thing it sets forth is that the Illinois State Society is composed of workers.

MAD RIVER VALLEY DENTAL SOCIETY.

THE society met in annual session in the parlor of the Phillips House, Dayton, Ohio, Tuesday, May 20th, 1884.

The President, A. BERRY, of Cincinnati, occupied the chair.

The subjects for discussion were as follows :

1. The Value of Pulpless Teeth and Roots.
2. Inflammation.
3. Alveolar Abscess.
4. The Promotion of Osseous Development.
5. Facial Neuralgia.

Papers were read by Dr. Geo. Watt, Xenia, on *The Promotion of Osseous Development*; *Antiseptics and Disinfectants*, by Dr. E. J. Lilly, Circleville, read by the Secretary; *Alveolar Abscess*, by Dr. F. W. Sage, Cincinnati; *A Plea for Education*, by Dr. Geo. L. Paine, Xenia; *A New Mouth Mirror*, by Dr. A. A. Blount, Geneva, Switzerland, read by Dr. Watt. Dr. Watt exhibited a porcelain gum tooth, made by Taft and Watt in 1852. It is the property of Dr. B. A. Satterthwaite, Dayton, who claims that the gum color is the most natural he ever saw.

A letter was read from E. H. Boune, D.D.S., Rocky Hill, N. J., requesting an honorary membership. The Secretary was instructed to notify the applicant that the society had no provision for any but active members, and they must be present at the meetings. It is peculiar in that it gets along without constitution, by-laws, or committees, and with very few officers.

The Secretary stated that the payment of dues for this year could be passed if the members in arrears would pay up.

W. A. Jackson (colored), of Dayton, was elected to membership. About twenty-five members were present at the meeting. Dr. Watt exhibited some vulcanized gutta-percha plates being probably the first ever used in the west. The case of E. A. Dill, of Yellow Springs, who is said to be practicing illegally, was referred to the officers with power to act. The officers were instructed to prepare a programme for the next meeting. The papers read at the meeting were ordered published in *The Dental Register*, and the O. S. JOURNAL OF DENTAL SCIENCE.

Officers for the ensuing year: President, Geo. L. Paine, Xenia; Vice President, C. Bradley, Dayton; Secretary and Treasurer, W. H. Sillito, Xenia.

The thanks of the society were tendered Drs. Watt, Lilly, Sage and Paine for their papers, also to Drs. Blount and Taft for their contributions.

THE VALUE OF PULPLESS TEETH AND ROOTS.

DR. J. H. PAINE felt better satisfied in retaining pulpless teeth in the mouth, than formerly. In many cases they did valuable service. The root having two sources of nourishment, the pulp and the periosteum, we can usually save it if the latter remains. The exposed pulp cannot live in an exposed condition. If the blood in it is a bright red we may be able to save the pulp by treating and capping; but if it has become dark and congested we destroy it with escharotics. Uses arsenious acid and glycerine; the former finely ground that it may be absorbed more readily. Now if we can fill the canal successfully and keep the periosteum healthy, the tooth will be useful for years. [In answer to questions by members.] Am not in favor of devitalizing pulps unless compelled to. Apply only a minute portion of arsenic. Many pulps destroyed with carbolic acid are only partly destroyed—the “legs,” so to speak, are often left alive and the operation rendered uncertain. Strives to save pulpless teeth for people who will appreciate the service, even though they cannot pay full prices.

DR. R. N. BOAL: Why is it best to strive to remove all the pulp, if it is true that the “legs” may remain without giving trouble?

DR. J. H. PAINE: Because danger is always to be apprehended from a tooth with these amputated pulps.

DR. J. TAFT: I can remember, and it is not very far back, that if there was a pulpless root or an inflamed one in a mouth, the best method was thought to be to take it away, for fear it might do mischief at some future time; and often teeth were removed with the pulps alive. Have seen many cases where some crowns were gone; some decayed and some good, and they were all removed to make way for artificial dentures. Such would not be the treatment now. All teeth and roots that can be made useful, in any way, should be retained. They preserve the form of the features, and the expression for a great length of time. In a quarter of a century the practice has so changed that

the removal of what was formerly regarded a nuisance would now be severely censured. The subject is receiving as much attention as any now before the profession. Some are practicing commendably in this respect, like the skillful surgeon who endeavors to save any part that can be restored to usefulness. I believe that the time will come when roots, such as are destroyed now by some of the most skillful, will be saved. If roots are allowed to remain they must, of course, be restored to health, or the teeth in their vicinity, being unused, will become foul and diseased. When roots are removed the change from loss of tissue extends to the exterior aspect of the face, and involves the voice also.

There are many methods of crowning, and none of them are good for all cases. Only by wide study and conscientious efforts will you succeed. If you fail do not give up, but try again. We cannot expect to succeed at once with a new method, although it may have great merit. Some take a liking to a particular method, persevere with it, and of course succeed. Sometimes a root will be rebellious, and we fail, but that should not discourage us. Physicians lose cases, so shall we be unsuccessful; we should go on in the expectation of success until we fail, and be exceedingly careful how we sacrifice teeth or roots that might be saved.

DR. GEO. WATT: We always feel inclined to say "I told you so;" and some of you may remember how I was blackguarded (about 1857-8) for putting in a great many pivot teeth. A patient for whom I put in the six anterior superior teeth in 1858, lost them in 1876. My first case was two superior central incisors for a physician's wife. They were put in about 1853, and extracted in 1871. When the dentist came to extract for a full denture, he asked the patient how it was that the two front teeth were saved when the others were all decayed. They were the ordinary pivot tooth on a hickory pin. Dr. J. Taft filled a pulpless tooth for me 39 years ago, and although the crown is gone, the root still does service.

(A recess was taken to allow the examination of models and samples of crowns—the How, Bonwill, and others.)

Resuming the discussion:

DR. J. TAFT: If a pulp dies it must be without any assistance from me. A physician might as well decide to kill his patient because he thought he might not get well. Never use so deleterious an agent as arsenious acid.

ALVEOLAR ABSCESS, FACIAL NEURALGIA, ETC.

DR. J. H. PAINE: First give ventilation by tapping the canal. Sometimes relieves periodontitis by raising the plate of the alveolar process, using a sharp instrument or blade. A case in practice is better than any theoretical case. A patient came to me suffering from periodontitis. There was a large gold filling in the tooth, I didn't want to lose the tooth and filling. Patient wanted it out. Extracted the tooth, removed the cyst and replaced in its socket. The tooth is still good and serviceable after four years. I was careful not to remove the periosteum; most failures come from that. Out of eight cases of replantation, I have had six successful ones. Free bleeding, by scarifying the gums and application of leeches, always does good. Also paint the gums with equal parts tinct. aconite root and tinct. iodine. Hot applications and poultices should be avoided.

DR. R. H. BOAL: Do you fill the foramen?

DR. J. H. PAINE: No; just file off the spur—the rubbing closes it.

DR. BOAL: How many were lower teeth?

DR. PAINE: None; I recognize that it is harder to replant lower ones.

DR. BOAL: Have had aconite and iodine tried most effectually on myself. Never suffered so much in my life as from that application.

DR. E. F. SAMPLE: In cases of putrescent pulp, the gases penetrate the dentine, and before replantation the dead pulp, etc., should be removed, and the canal filled.

DR. PAINE: You misunderstood me—the pulp had been removed.

DR. SAMPLE: Apply on the skin over the sinuses a liniment composed tinct. aconite root $\frac{1}{2}$ ounce, chloroform and camphor each $\frac{1}{4}$ ounce. It gives immediate relief.

THE PROMOTION OF OSSEOUS DEVELOPMENT.

DR. J. H. PAINE: In 1874 our only daughter, then a child, fell and broke her arm. We had then been using this kind of food mentioned in Dr. Watt's paper for several years. On the ninth day the family physician removed the splint to see if the apposition was correct. He found the bones already united, seemed astonished, and asked about the food. A mother asked

if there was anything she could do to improve the teeth of the children. Recommended the brown flour pudding, etc. She used it, and at her next confinement, the labor was easier and the child's osseous development better.

DR. E. F. SAMPLE: We must admit that the teeth of the people are worse than the most avaricious dentist could desire. The past will not do for the present and future. We must do something beyond what our predecessors have done.

DR. J. TAFT: We too often discuss this subject as if all that was necessary was to have the deficient material. Look to the condition of the other tissues of the body, and put the system in good order. The soft tissues have greater recuperative power than have the hard tissues; and there is less change going on in the teeth than in the rest of the osseous system, owing to their greater density, etc. Therefore the dentist should look further than the teeth, and study the growth and development of all parts of the body, and learn the physiological action necessary. It is not enough to give a bottle of lime phosphate occasionally.

I am in accord with the views presented in the paper of Dr. Watt. It is more important that we secure good teeth for the coming generations than to repair the decayed teeth of the present. It has been greatly neglected in the past. I think any mother would gladly take up and follow out the suggestions of an intelligent practitioner.

DR. R. H. BOAL: Am one of a family of three brothers and three sisters. I have the best teeth, and attribute it to my craving for Graham bread. The teeth of the others of the family have had better care than mine have, and they have lost more teeth. Have had but seven filled.

DR. A. J. GROSVENOR: A few weeks ago, in examining the teeth of a patient, I found a filling undermined on one side with white decay. I told her the filling would have to be replaced, and she asked why my fillings were always dropping out.

She has lung trouble, and eats white bread, and preserves, and doesn't like oatmeal, Graham bread, milk or beef.

MISCELLANEOUS.

Prof. Taft gave a most interesting lecture on inflammation, of which our report is incomplete, but we hope to have it for our next number.

DR. A. BERRY recommended asbestos felt as a superior packing for the vulcanizer.

THE SECRETARY presented a pad of pure gum packing 3-16 thick, 5x4 inches to be tacked over the edge of the bench, and used as a flexible cushion in filing plates.

DR. J. TAFT exhibited a superior third molar with a supernumerary in the bifurcation of the roots.

To Members of American Dental Association:

FOR the meeting of the American Dental Association at Saratoga, N. Y., August 4th to 9th, 1884, the New York, Pennsylvania and Ohio Railroad will sell to members of the Association and their families, round trip tickets to Saratoga and return at one and one third the lowest unlimited rate from Cincinnati, and all coupon stations on the line.

Tickets will be on sale August 1st to 5th, inclusive, good for return until August 15th. Members of the Association can procure certificates on application to Dr. M. L. Rhein, No. 7 West 38th Street, New York City.

These tickets will be good to stop over at Lakewood, giving an opportunity to visit Lake Chautauqua, either going or returning, provided tickets are used within the prescribed limit.

AMALGAMATING BATTERY-ZINCS.—We have tried the following method (from the *Dental Record*, London), successfully, the result being perfect and almost instantaneous. The solution should not be kept in the operating room, nor laboratory, as the fumes will rust all iron or steel surfaces near it.

"Make a solution of mercury in *aqua-regia* as follows: Mercury, one pound; *aqua-regia*, five pounds, (*i. e.*, nitric acid, one; hydrochloric acid, two); afterwards adding five pounds of hydrochloric acid; the amalgamation is effected in a few seconds by this method, and with thirty-five fluid ounces of the solution, one hundred and fifty zincs may be amalgamated. By this method the zinc does not require to be previously cleaned, as the above solution cleans the zinc and deposits the mercury at the same time."

A convenient quantity of the above solution can be made by those using the electric plugger, or the electric engine, by dissolving $\frac{1}{4}$ pound of mercury in $1\frac{1}{4}$ pounds of *aqua-regia*, and adding $1\frac{1}{4}$ pounds of hydrochloric acid. Put in an ordinary candy jar, with a glass lid.

H.

WE speak with the lips our lessons, directly and indirectly, and they may be good ones; but the best of all we utter is what we say by our lives.

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"A word fitly spoken is like apples of gold."—SOLOMON.

CAN A DENTIST BE SAVED?—SOME CONSIDERATIONS AS TO THE PROBABILITIES AND IMPROBABILITIES OF THERE BEING A LIFE OF HAPPINESS HEREAFTER, RESERVED FOR DOCTORS OF DENTAL SURGERY.

BY A VICTIM.

[Read before the Cincinnati Literary Club.]

DURING a late siege of some duration in a dentist's chair, the thought contained in the above topic was very forcibly impressed upon my mind. The deeper he probed in his subject the more I was led to consider his probable future. As to that particular dentist, I cannot see how, in the nature of things, he can have any reasonable hope; but still that does not dispose of the whole class. I desire for a moment to look at the prospects of the whole profession.

We have had endless discussions as to what is going to become of lawyers; of how doctors will fare when they come to render an account of the deeds done while in the body; of

whether preachers will all go in at the strait gate which they so readily point out to others, with varying conjectures as to the reasonable probabilities.

Then there is a large class for whom it seems to be conceded there is absolutely no hope. There is the lightning-rod man, the female book agent, the plumber, the life insurance agent, the telephone operator who always persists in connecting you with the wrong person—these are generally looked upon as lost; and I have not the temerity, at this late day, to even claim that they have anything to hope for beyond this life.

But in all the discussions in regard to the great subject of the hereafter, I do not remember of ever having heard the prospects of the dentist seriously mentioned. As is well known, he occupies no small part in the composite filling of the world's great cavity—his prospects, therefore, for future happiness or otherwise, should be a matter of very great concern. Let us look at him, then, for a moment. As he examines others for defects and perfections under the strong reflected light of a long, crooked handled, magnifying mirror, so let us look at him as he appears under whatever light may be cast upon him by his acts and deeds, and general walk in life.

The question then, upon the discussion of which we are about to enter, simply stated is, CAN A DENTIST BE SAVED? This of course involves an examination of what, under our present plan, is necessary to salvation; upon the establishment of which there would logically follow the question, whether this plan includes the dentist. If not, whether by any indirect means he may be brought under the general head. If so, then whether his general character, the instrumentalities which he employs in his business, and his treatment of mankind in general, are such as to warrant us in concluding that there is any reasonable ground for his final salvation.

A doctor of dental surgery, in the original acceptation of the term, is a man who removes teeth by surgery—*surgery* having reference to the effort required to remove a deep seated molar. A man, then, whose profession is to artistically remove teeth with a *surge*, may be defined as a dentist. Modern dentistry has added to this general business of the profession, the art of pounding, sawing, wedging, filing, boring and otherwise injuring a man within an inch of his life, and yet not kill him. This art

was wholly unknown to early dentists, their field being restricted to what is now known as the *surgical* part of the business.

Now, what can be said in favor of the affirmative of the proposition above proposed? What ground has the dentist for a hope of a future reward? Alas! I fear but little. The only argument that I ever remember of having heard seriously proposed, was by our late, lamented fellow citizen, William Haller. Haller claimed, in his unpublished volume entitled, "French Blacking, and cognate subjects, considered from a socialistic standpoint," that this world was but a preparation for the next; that we were here undergoing a kind of *shining up* process, which was only a preparation for that which was to come. That, hereafter, we would all stand on an equal footing, and the only way to become accustomed to this state of things was to take from those who have something, and give it to those who have nothing, and thus strike a general average. A combination of these previously prepared elements, in a future state, was what Haller called Heaven. Into this everybody went—of course, among others, dentists. It will be observed that this argument was not directed especially to the question of the salvation of dentists, but, being general in its conclusions, covered in an indirect way the field of dentistry. Haller's scheme never became popular. Wealthy corporations opposed it, notably the Standard Oil Company. It was looked upon as tending toward monopoly, especially in favor of blacking vendors.

I note this argument of Haller's, not with the intention of attempting a refutation of it, but simply out of a spirit of fairness to look at both sides of the question.

Now what can be said upon the negative of the above proposition? What reasons can be adduced to show that a dentist cannot be saved? Here the field broadens upon the view. I claim,

First—That our present scheme of salvation does not include the dentist. Dentists are a product of modern civilization—we have nothing that shows us that the ancients ever had their teeth filled. I am told by Judge Cox and other learned mound builder-ologists, that no skeleton has yet been found that could be certainly identified as that of a dentist, and that the only one which has ever been discovered, which showed any indication of having been treated by a doctor of dental surgery, was one lately exhumed at Madisonville, which showed that the lower jaw bone

had, in life, been broken in three places. Upon careful examination of this jaw bone, it was found that there were evident traces upon it of an attempt to repair it, by riveting a small narrow piece of muscle shell on each side of the bone, across the fracture. This discovery is certainly very remarkable, and I am free to admit that it somewhat shakes my belief in the modern origin of the dentist; but still it is not to my mind absolutely conclusive, since the man may have died in a desperate attempt at learning the German language. This would, of course, explain the fractures, but hardly satisfies the mind in regard to the riveting. But I will not pursue the investigation as to the origin of dentists farther, but will proceed with the main question.

Our plan of salvation, we are told by theologians, is based upon the Bible, and that any other is but a snare to the unwary. Now the Bible does not mention the dentist. Certainly, if he had been contemplated in this only plan, some mention would have been made of him. The lawyer, the doctor, the preacher, the carpenter, the baker, the worker in gold and other metals, in fact, almost every business is mentioned, but we hear nothing of the dentist. *Expressio unius est exclusio alterius*, is a very old and wise rule of construction. If then, the source from which we derive all our facts as to our plan of salvation, makes no reference to or mention of the dentist, either directly or by necessary implication, the conclusion seems absolutely unavoidable that he was not contemplated therein. But I claim,

Second—That his general character is not such as to entitle him to any reasonable hope, even though we were to admit, for the sake of argument, that he is included in the general plan.

It will probably be admitted, without argument, that a man to be saved must have some regard for the feelings of other men—charity for their faults, and sympathy for their pains. But do any such feelings ever enter the breast of the dentist? Does he ever let an opportunity pass to belabor an exposed nerve: No, far from it. He will cut away a whole tooth to discover an exposed nerve. And how he gloats over it when he finds it! He will rub it, and scour it, and bore it, and punch it, till life becomes an absolute burden to the patient. Before life is quite extinct, he will give the patient a moment to recuperate—he would spoil all his fun if he went too far. But he can't wait long; he is too eager to get back at that nerve. You beg and

pray him to mutilate you in any manner he pleases, but, for mercy's sake, not to touch that nerve again. He will declare he will do as you desire, but the moment you allow him within the confines of your mouth, he will again begin to scour that nerve. I am told by parties who know, that the greater part of the instruction given in a dental college, is directed to the subject of how to find and properly manipulate an exposed nerve.

But the pleasure which a dentist has in discovering an exposed nerve, is probably exceeded in many instances by the diabolical delight which he takes in filing between two adjoining teeth. I understand that he will go without his meals, for days at a time, if he can have steady employment in filing between teeth. If poor Annanias lost his hope of a future reward for fabricating a small story in regard to a real estate transaction, what possible chance can there be for a person who will take pleasure in using a file on the teeth of his fellow man?

Has any one ever failed to observe the unalloyed pleasure which a dentist takes in reaching up into the innermost recesses of your brain, with that long thread-like probe, which is one of the implements of his profession?

Laughing gas was a wondrous discovery for dentists. To say that dentists laugh at the thought of it, is putting it so mild that it scarcely makes an impression. With gas he has the exquisite pleasure of removing a whole forest of teeth without fear of resistance. The patient has all the agony of the operation without the power of thrashing the operator. And yet this is what they call in the profession, "extracting teeth without pain."

But I do not desire to be too hard on the dentist, and, therefore, forbear from noticing, at length, what is probably the acme of delight in a dentist's life—I refer to what is known as killing a nerve. I will only say that, an indictment for murder in the first degree, would be but trivial punishment for this offence. But,

Third—I claim that the instruments which he uses in his business are sufficient to preclude him from any reasonable hope of mercy.

First to be noticed under this head is the boring machine, which the dentist puts in motion with his foot, and is technically called in the profession, "The Improved Nerve Searcher." This same machine is used in boiler works for boring holes in heavy steel plates. It has but lately been introduced into dentistry. It

is a very effective machine in its results. A good dentist, I am told, can, by the aid of this machine, find a dozen nerves to work upon where he would have been able to find a single one under the old process. Thus it will appear that his power for producing pain in the patient is increased twelvefold by this one invention. I believe that the claim that it is an impossibility for dentists to be saved, might safely be rested on the use of this one machine alone; but there are others which equally demonstrate his utter disregard for the feelings of other men.

There is the wedge, which he will smilingly drive between your teeth, until your screams drown the sound of his hammer. Does he ever show signs of pity while your jaw bone is being pried asunder? The wedge is a most powerful adjunct to the file, which we have mentioned above. With the wedge he often opens up fields for filing, which could not possibly be worked without it. With all the varied implements of the dentist's profession, we believe it may be stated, without fear of contradiction, that without the file the dentist's life would be a comparative blank.

Next under this head, we must mention an instrument noticed above, I mean the long thread-like probe, with which he reaches away up into the regions of the brain, far beyond the field of vision, and finds opportunities for producing pain which would be quite beyond his reach, were it not for this unique instrument. When the boring machine, and the wedge, and the file, have all failed to do their perfect work, he may yet find endless pleasure in the use of this probe.

But, with all these instruments, the patient may still have the comfort of crying out, if the pain becomes unbearable. This oftentimes annoyed the dentist. It was, therefore, for a long time, a serious question with the profession how this difficulty might be avoided. The plan was finally hit upon of completely cutting off the power of speech in the patient, by stuffing his mouth with the tail of a rubber coat. It worked like a charm; and now this infamous rubber cloth has become one of the favorite tools of his profession.

But, as if these things were not enough, I notice now that they advertise steam dental companies—whole corporations of dentists working as one man, and that with the powerful aid of steam. The dentist is, withal, growing bold in sin.

Can there yet be hope for the final salvation of men who can have the heart to employ such agencies as these upon their fellow man?

In conclusion, I may say that I do not wish to be considered as supposing that, with the above hastily prepared thoughts, I have exhausted the arguments which may be brought forward against the salvation of dentists. There is the vast field presented by the size and number of their bills, which I have not touched at all. Many others will, no doubt, readily suggest themselves to the hearer. My object was simply to call attention, in a general way, to the precarious situation of the dentist, as regards his future welfare, with the hope that I might stimulate to earnest labor in this, heretofore almost wholly neglected, field for missionary work. For, I verily believe, that if he were to repent, renounce his business and go at something, there would yet be ground for hope.

ETHICS IN DENTAL PRACTICE.

BY DR. W. F. MORRILL, NEW ALBANY, IND.

[Read before the Indiana State Dental Society.]

THE Greek philosophers and sophists were wont to discourse on ethics, which comprised a code of morals drawn from their wisdom and experience, the teachings of which have, through the pages of history, come down to us and have been made the study of modern scientists.

Perhaps the early definition of ethics was originally, character. Aristotle applied it as not concerned with character simply as character, but with good and bad qualities,—what is “good,” and what “ought to be good,” and the opposite,—that the good that ethics investigates is to distinguish it from universal or absolute good. A further definition was added, as the study of the good and well-being of men considered as individuals. We see individual man as a member of some society, what we call his virtues are chiefly exhibited in his dealings with his fellows; and his most prominent pleasures are derived from intercourse with them. The code of ethics adopted by the profession grew out of needs for some standard by which to promote a higher profes-

sional character. Practitioners had hitherto no definition or guide of their relative duties and courtesies toward each other. The profession was at a low ebb until the brain of Dr. George Watt crystallized the decalogue, and manfully battled for its adoption in the American Dental Association, at its annual meeting in 1866. Since then it has been engrafted into all the by-laws of nearly, if not quite, all dental societies throughout the land. Its provisions are wise, just and high-toned. It is neither too exacting nor onerous. Its merits have been tested nearly a score of years; and the weight of experience amply qualifies us in saying the cases of infractions, compared to the large number who are engaged in dental practice, are few, and these, as in charity let us hope, arise rather from ignorance of the code's existence than from a disposition of stubborn resistance to pervert its spirit and letter. Some of our colleges in their eager ambition to amass sudden wealth, to achieve a notoriety, to outstrip a neighbor in the field of practice, to have a name of being full of clientele, or from other grievous conjectural motives, are induced to resort to disreputable methods to achieve so-called success. They chafe under restraints, they lose self-respect, disregard decency and honor. They forget a memorable motto: "Small and steady gains ensure tranquillity of mind." All men are not born gentlemen, nor can that quality be thrust upon them. There are others who have the good, and well-being, and the instincts of nobility about them; and their professional intercourse is so easy and natural that ethics is but their every day atmosphere.

The dental profession composed, generally, as an army of faithful co-workers, endeavor to preserve a good standard of character. In fact, we may well challenge any other intelligent body of men to compare with them in habits of sobriety, and rectitude of morals. True, we have some ghouls, denominated dentists, roaming along the professional pathway, who are obedient to no laws, human nor divine. They prate they do not belong to any dental society; do not wish to be hampered by any rules of ethics, or be bound by any standard which implies decency and elevation. They propose to remain outside, free, untrameled, where they can abuse and vilify as they please. They favor reduction to their own plane. Thus left to their own seclusion and their few followers of their own kind, they drift along beneath the incrustations of popular dislike.

In the maintenance of the code, perhaps one of our commonest experiences of its infractions, lies in professional fees. It is liable to occur in this way: people sometimes shop for cheap dentistry. They have no idea of the real value of dental services; have been informed by some friend that your charges were rather high, much more so than Dr. Windley's, around the corner, who says he is a much better workman and more reasonable in prices, and he desires our patronage. But as our neighbors, say they all, or nearly so, come to you, that we thought we would stop in and enquire about your fees, etc., etc. It would be the height of folly to waste one's good temper over these doubtful compliments, or to assume a sweetness of manner and proffer to do this work at unremunerative fees. Yet these sly and seductive manners often win. Of the aggressive assaults of shrewd women beware. They make encroachments on the operator's receipts and tell it to others. Thus damage is done to both parties. And when once abroad among neighboring practitioners, there is an ill feeling engendered that begets trouble. They forget that that which costs time, labor, taste and skill to accomplish, cannot be procured at nominal fees. Even among first-class operators, competition is often sharp; but when honest service is rendered, liberal fees should be demanded, otherwise it is unfair, and destroys the confidence of the public in the nature of dental operations, and signify that these services are very little above wood-sawing in value. Honest debts cannot be paid by cheapening the fees. Nor do exorbitant fees, as some may suppose, indicate the highest skill. Both of these extremes are condemned. Operators above ordinary skill may be, sometimes, so situated in location as to be unable to command large fees, owing to the moderate circumstances of their patrons. Usually this class of dentists have to their memory an epitaph: "Worked to death, and no pay!"

Nothing can cast a greater stigma of reproach, nothing can degrade our calling more, nothing is more gratifying to a whole board of quacks and others who never connect themselves with dental societies, than to have one of the profession who has been an illustrious example in all good works, bearing patiently any part assigned him, then break faith with the code and go over to the enemy—become one of them.

It has not possibly escaped your observation that the several

instances of down-falls, whom you may recall to mind, some of them were dentists commanding a good practice, took apparently a lively interest in the welfare of dental progress, were men of no mean abilities, who in an evil hour sank all their prospects of honor, pride and respectability, which contribute to make professional life desirable and happy. They now live outcasts from intercourse and fellowship with their colleagues. Note this departure of these recalcitrants; watch their career; and if you can see anything worthy of imitation, anything you would desire to exchange for theirs, then hasten and be wise.

It is a matter of regret in the province of the committee to which are confided the custody of good morals, that we should be compelled to notice a grievous offense connected with an institution so prominent as the Indiana Dental College; and yet, if we let no guilty man escape, how can we allow an institution designed for the proper training of young men in morals as well as in dental science, to go unproved and unadmonished, if the proof be abundant? It has come to our knowledge that an advertisement appeared in the "Want column" of the *Indianapolis News*, October 15, 1883, as follows, viz.: "Wanted, mechanics and workingmen to come and bring their families to the Indiana Dental College and get sets of teeth for \$4 and \$6 per set, the best quality. Gold fillings 50 cents each. Teeth extracted free." If the Dean or Secretary of the faculty ordered this advertisement, it was ill-advised and mischievous, because it is a clear violation of this code of ethics. It does harm in many ways. And if it was done merely to procure patient-material for the students to practice on, it was not prudent, because it was unfair to neighboring practitioners who are affected by it. Nay, more, it is injurious as a bad example before students whom they are supposed to teach good manners and morals in the career of dental practice. Besides such announcements weaken confidence in the nature and skill of operations, and encourage the hope that the public may receive them for mere nominal prices. No college resorting to similar dodges, as this example furnishes, can hope to inspire confidence or attain to any good repute among high-toned practitioners. Hence it is the sentiment of this committee that the faculty upon whom falls this blame should make speedy amends, and hereafter repeat no similar offense.

Let me add for the benefit of those not informed that the

code permits only card announcements of name, place of office or residence, and the occupation. This is the strict construction as given by the framers of the code, and although some slight latitude is frequently taken in the code, they are usually of so small digressions as to receive little or no attention.

There is, however, another species of the code's infraction that demands attention, common among those dentists located at county-seats, or in cities. They take young men "to learn the business," as they term it; and after a few months apprenticeship, they are started out fully equipped on a cruise of dental depredations among the rural population. This is done for pecuniary gain, as well as to let the country people know what "monarchs" we have in dentistry. Such men ought to be amenable to some law and prosecuted to the fullest extent. A practitioner duly qualified may go from house to house, but he must be previously solicited by his patrons. He may have appointments at towns and places, but he cannot go from house to house, like a common peddler, and seek patronage.

In our calling we have several noble examples, filling the niche of fame. They were illustrious patterns of etiquette, duties and character. They were born gentlemen. They needed no ethics to school them in the lesson of morals. Their memories we cherish and delight to recall. The pages of our dental literature are emblazoned in the living light of their thoughts and deeds, and seem illuminated as if by a train of planets. Prof. Elisha Townsend, him of whom I am now reminded, was, thirty years ago, the Chesterfield of our profession. In person he was a splendid type of manhood. He possessed remarkable gifts, a good scholar, a graceful speaker, a keen observer of men and things. He was one of the early masters of dentistry; was a pattern of personal neatness; knew the elegances of literature, and practiced the graces of life. His lectures on "Professional Etiquette," and "Professional Fees," nearly thirty years ago, are classic now. They have never been equalled by any modern writer or speaker in force and beauty of diction. And especially his remarks upon personal habits, manners and morals, are golden words in pictures of silver. They ought to be republished for their impressive lessons, to benefit the present and coming generations of dentists.

In surveying the field of dentistry in Indiana, a close

observer will carefully note a gradual appreciation in the maintenance of professional character. The code is working good results. True, not more than one-fourth of our number subscribe to it by being members of this association. This is a matter of regret. There are others who claim to be with us, who pay dues, and are tempted to digress, but when found guilty, have the robust hardihood to adopt a saying of Plato's, which is: "When a good and brave man does wrong, he is not only prompt to confess it and make all reparation possible, but presents himself for punishment; and is not content until he has suffered the penalty of the broken law."

NOTE.—It was a strange affair—a star chamber proceeding! A member of the Indiana Dental Association read a paper on Dental Ethics in the morning of the second day's session, in the presence of a goodly assemblage of dentists. A slight applause followed its reading, showing it was generally approved. Dr. Cravens, the Secretary of the Indiana Dental College, to whom some strictures in the paper referred, made some criticism in defense and justification of his course. The other two members of the committee on ethics knew the contents of the paper before it was read at the meeting of the association, and approved its sentiments. The writer of the paper asked and obtained permission to control his paper's publication.

Before the adjournment of this session it was agreed that a short session, merely to elect officers, after the clinics, at 5 P.M., should be held. When the hour arrived there were not a large number present, and these mostly those who counted themselves aggrieved by the criticisms of the paper on ethics. And, so soon as the election of the officers of the State Association was disposed of, Dr. Will Heiskell, of skilled oratory, who had not been present during the reading of the aforesaid paper, arose and requested Dr. Morrill to re-read that portion which had a bearing on the Indiana Dental College. After a formal vote that he should do so, that part he desired to hear was read and commented on by Dr. H., in the fervid eloquence of denunciation for which he is so distinguished. He demanded a reconsideration of the vote of the paragraph animadverting on the college and that it be stricken out. Dr. Herriott, the dental depot man, gave it his support, and by dint of good fellowship of several others, carried their point. Dr. M., before the final decision was reached, had gone to tea, and now submits to the arbitrament of dental sentiment for vindication.

PROFESSIONAL SUCCESS FROM A BUSINESS STAND-POINT.

BY LEE S. SMITH, PITTSBURGH, PA.

[Read before the Odontological Society of West Pennsylvania.]

Mr. President and Gentlemen:

A LONG business association with the dental profession, as well as a personal friendship for its members, and a professional pride and interest in the profession chosen by myself, and to which for twenty-two years I have been so closely allied, has induced me to offer the contents of this paper, in hopes that it

may not be uninteresting to the older, while perhaps benefitting the younger, members of that profession.

While we must ever hold to the truth of the Bible maxim, that "Godliness with contentment is great gain," and the true foundation of all earthly happiness, yet God has properly placed within the breasts of the members of his creation, the honest and commendable desire to succeed in a worldly, as well as in a higher sense. Therefore, "Excelsior" becomes the proper watchword of every true man; and a seeking after the true elements of success should be part and parcel of his education. I would therefore say to any young man starting in business, to take for his motto, honesty and fair dealing, as the true and best policy.

I am, no doubt, brought tenfold more than you are into a knowledge of difficulties and trials which surround and discourage our young professional brethren, who leaving your offices as their preceptors, and the colleges as the finishers of their dental education, launch themselves on the great world as practical dentists, soliciting a share of its patronage, with a slow appreciation of their abilities, but an ever present bill of expenses, in addition to the many professional failures, which must of necessity embarrass them—as weeks and months drag wearily by, as counted by the tedium of waiting for patrons, but hurry, on wheels of electricity, as computed by the rapid return of rent day, board bill, and other necessary expenses.

I am well aware that many of you have gone through these discouraging experiences, and should therefore have a full appreciation of those following; but, like some great emperor, having attained your present height of professional independence, you lack that sympathy with those struggling below, which you would have did you come into contact with their daily and hourly troubles and embarrassments. This is but human nature the world over.

I have been, time and again, interested in and instructed by the able papers read before your society, and the discussions following the same; all tending to elevate the profession, and instruct your members, more especially the younger ones, in the true elements of professional success, and ability to properly administer to the wants of their patrons; and it is with an honest desire to add to your good advice and assistance, that I shall offer a few practical suggestions on the business side of a professional man's life.

In looking over our busy city and country, and into her great stores and hives of industry, has the question never suggested itself to your minds, why are there so many men, book-keepers, clerks, porters, etc., while others, starting on the same, or often on even lower footing, in the race for success, fill the chair as bank president, proprietor, or manager. If such questions have suggested themselves to you, I think I can, to a great extent at least, assist you to an answer, and I would add that this opinion is not founded on theory merely, but is reached by close and careful study and observation.

It is this (with exceptions of course), the masses of persons who enter the service of others, seem to say to themselves, "well, I am employed for so much money, my wages will be forthcoming at the proper time, and it is my duty to myself, to do just as little service for my wages as I can do and satisfy my employer." They never, apparently, think that every interest of their employers should be theirs—even from a selfish standpoint—and that the true road to success and advancement, as well as every sense of duty, should prompt them to look after their employers' interests as they would after their own. In other words, so far as it is in their power, they should make themselves so necessary to their employers, that they would do almost anything rather than lose their services, even, as in many instances has been done, elevating them to partnership. I dare say the older members of this society, who have had assistants and students, can verify this statement, and the theory advanced. But I imagine I hear some of you say, "in what has this matter of service to do with us, as dentists' practicing on our own account?" I answer thus:

We are all in service, one way or another. I am, by the very nature of my business of supplying dental goods, in the service of the dental profession, and, laying aside all questions of honesty and fair dealing (which, I hope, have no small part in influencing my course of business), it is still to my interest, in every sense, to do everything I can to supply the wants of my patrons, and to minister to their every wish; and, by so doing, to strive, so far as I can, to make my services so essential, that they would at least be sorry to part with them.

As to the profession, they are but the servants of the public, and often a most exacting one at that; and, for the same reasons, it is to your every interest, to so satisfy and please your patrons,

that they will think there is but *one* dentist, so far as their preference goes.

I think I hear some of you say (whom I know, from association, have long since imbibed these principles, and practiced them to your own satisfaction and success), "Do not all desiring to prosper and succeed, follow these rules?" I answer, most emphatically, *no!*

I have talked to and witnessed the actions of many dentists whose every idea of success seemed to be to get the work intrusted to them off their hands, and the money (often too much for the kind of service rendered) into their pockets, without, apparently, any sincere desire to attach the interests of the patron to their interests, so as to not only insure his return, when more work is desired, but to enlist his influence with his family and friends, so that he may recommend them to *his* dentist.

Let me make my meaning more plain, if need be, by saying that I would advise any one to do just as I would, were I starting in practice, viz., did I get work, I would do it in such manner, by devotion of time and care, in every detail of its manipulation, were it either operative or mechanical, that it would stand unsurpassed (providing always that I had the ability) by any similar operation. Of course, that might take time, even sometimes beyond the compensation. What if it did? What is time to the beginner, especially as compared with success? As a rule with the beginner in all professions—and ours is certainly no exception—time is a drug on the market, and as such is too often sacrificed at a figure, that by showing your own undervaluation of your merits, they are correspondingly depreciated in the minds of your patrons.

Then, use the time, after placing a proper price on your operation, in perfecting and beautifying your work. You may have to spend more time and money on the operation than is warranted by the fees, caused, it may be, by inexperience and want of practice, but it matters not. Make the work satisfactory; for in that, rather than in dollars and cents, lies your future success. In short, make every patient your patron and friend, if possible to do so honorably.

This course will not only insure your individual success, but will assist in elevating the profession to which you have allied yourself, by recommending the care of the teeth to the thousands

who yet think that the dental profession is entitled only to days' wages, and that dentistry consists in having the teeth "*pulled*" and having a \$5.00 set put in.

There is one more point in which I am satisfied many members of the dental profession are deficient, and that is in looking almost exclusively to the professional side of their business, by performing excellent operations and studying to give entire satisfaction, and then neglecting the equally important side of the question, in their own interests, by fearing to conduct their business in a business-like manner. I have heard dentists, who have excellent practices, say that they had plenty to do, but that their patients did not call and pay their bills. When asked if they had any system of sending bills and statements, they answer, "Oh, no! I would be afraid of offending my patrons." I have said to such, "How is it with you? Is your tailor, grocer, or others with whom you deal (if you buy on credit) afraid to send in his bills and statements, and then follow them up with his collector? Not at all!" My friends, by adopting business principles and systems, for the conduct of your business, you will not only be better off, and have your affairs in a more satisfactory shape, but you will gain the respect of the better class of business men with whom you come in contact.

My relations with the dental profession has been with the honest purpose of trying to assist in elevating that profession, being actuated not alone by financial interests, but above and beyond that, having many of the best and warmest friends I have in the world in its ranks, and a professional pride in its elevation. Therefore, if in these hastily prepared thoughts and suggestions, I shall have added one item that will enable a member of this society to take one step up the ladder of success, I shall be amply repaid.

ENERGY, literally from the Greek, is inward workingness; the blooming of the flower is energy; the increase of fruit is energy; the growth of the body is energy, yet in these there is no violence; the efficiency is not destructive, but vital; without it the whole frame must fall at once into corruption; with it, instead of corruption we have life.

Correspondence.

"I charge you that this epistle be read."

NOTES FROM EUROPE.

Editor of the Ohio State Journal of Dental Science :

YOU now have our Miller with you on the other side. You produced him in Ohio, but we discovered him on this side, and claim him by right of discovery. We feel quite sure the profession at home will be glad to meet him, who has, although a young man, made his mark already as an earnest investigator.

We sometimes see in the discussions in our societies at home, slighting remarks made in regard to the professional ability of the Americans practicing in Europe. Doubtless some men degenerate when they are a few years in practice on this side, especially if they succeed in having a large *native* practice. For there is no nation that appreciates good dentistry and knows when it is first-class but the Americans. Most of the European nations have never had good dentistry until they have fallen into the hands of some good American operator. Some conscientious dentists have succeeded in educating their European clients to appreciate good operations. But the schooling is so difficult, and the scholars so often show such little interest in the matter that, too often, even *genuine* Americans who are capable of doing work that they need not blush to have inspected by the most competent operator at home, fall into the same methods of the native dentists, and stop them up with the phosphates and amalgams. But of one thing I am sure, that our brethren at home will hardly believe when they are told, that one great stumbling block against always doing what our judgment would dictate in every case, is the fact that there is a strong prejudice among all classes, and especially ladies, to have any gold show in their teeth. Many would prefer a big black decay remaining in a front tooth, or have black amalgam put in, or return, if necessary, every three months to have it filled with some white filling, than to have the smallest pin-head cavity filled with gold where it would show. And then the average European will not remain quiet in your chair for any long operation, unless you tie him down. But notwithstanding these little drawbacks, I venture to say that we have quite a respectable little company scattered

over Europe, who are doing work that would stand the test of honest criticism anywhere. No doubt more bad work is done over here than in America; but we have not the same appreciative, ready-to-help-us, patients, as you have at home. Then, "all is not gold that glitters," and a great army of *native* dentists are going every year to America, and returning after a few months' absence, with a *genuine* American diploma, and they are classed as American dentists: and the most of them are as far from being shining lights in the profession as amalgam is from being gold; and yet many of these men send operations back to America that could be done as well or better by an office boy at home, after he has been in the office six months. Perhaps it is some work from such hands that our brethren have seen fit to criticise. What do you think of this? A patient from one of our best, *genuine* American, dentists over here, was in school in Germany, and had occasion to need the services of a dentist. He called upon one. The dentist seemed astonished when he looked in the boy's mouth, for he had a good many good gold fillings, and asked who did such work. After being informed, he said, "Well, he is an old fashioned dentist—*nobody fills teeth with gold now-a-days.*"

As American dentists for many years have been occupying the best fields in Europe, it is but natural that the native born dentist should become alarmed, and seek to stop this enemy, who is stealing away his bread. In some countries they have stopped the supply by laws which virtually prohibit any one but a native from practicing, either by making him pass through some school, or pass a severe examination before some board of medical men, who know a good deal about everything but dentistry. But our own land is supplying them the sinews of war, through our dental colleges, by graduating "rag-tag and bobtail," which is fast supplying "American dentists" to these lands out of the raw material.

The microbe is the bugbear (or bare bug) over here now, and seems a very little thing to create so much talk about, when it is asserted that "five thousand of them can sit comfortably on the point of a pin." But like the bugs that are said to destroy our teeth, there is much difference of opinion about them, as one man is said to have drunk a lot of water filled with them, and he did not take the cholera either.

WARRINGTON, June 23, 1884.

Editor Ohio State Journal of Dental Science :

DEAR SIR:—A rapid method of repairing vulcanite plates, the process described by Dr. Crawford, in your June issue, of burnishing new rubber, on a rough surface, with a hot tool, was practised by myself, fully twenty-two years ago, and was published by me in the English dental journals at the time. It was also described in my *Hints for the Laboratory*, published some fifteen years ago, and is now well known in this country. I don't write specially to make any claim, but to call attention to the fact that an equally good result can be obtained by painting a clean, rough surface of rubber with a solution of any of the pink rubbers in chloroform. When the chloroform is perfectly evaporated, the new rubber can be built on, and the whole invested and vulcanized. By this means an edge to edge joint can be obtained, showing only a narrow seam of new rubber; and the joint is so strong that a new fracture rarely, if ever, occurs in the same place. In my hands, joints made with the purer red or black rubbers, were never so strong as those made with Ash's pink IX, which I invariably used to make my solutions, building up afterwards with this or any other color desirable.

THOS. FLETCHER, F.C.S.

WARRINGTON, ENGLAND.

WHITE HALL, ILL., June 24, 1884.*Editor of Ohio State Journal of Dental Science :*

JUNE 11th, a lad, twelve years of age, called to have some teeth filled. On examination, I found the superior central and lateral incisors decayed on their approximal surfaces, the cavities varying in size from medium to large. I prepared the cavities, in the usual manner, for gutta percha fillings, leaving, in the larger cavities, considerable decalcified dentine, contiguous to the pulp, while in the smaller ones it was removed pretty thoroughly.

I adjusted the rubber dam, and was about proceeding to fill, when, noticing some loosened particles of dentine, in one of the cavities, which a chip blower would not dislodge, I moistened a piece of spunk in peroxide of hydrogen, and applied it in the cavity, expecting the loose particles to adhere to the moist pellet,

but, instead of this, a very prolonged effervescence of the drug ensued. I applied the peroxide to the other cavities, with the same result. I repeated the application in all the cavities (six), until the drug ceased to react. I dried the cavities, and, on examining, found the decayed dentine very much whiter, apparently firmer, and presumably well disinfected. There was no perceptible difference in the reaction of the peroxide, in the cavities having considerable decayed dentine and those having little or none. I have used the peroxide in other cases since, but with varying results. In adult teeth the reaction was less pronounced—in some cases none at all; while in children's teeth, in large cavities, there have been no exceptions to an abundant reaction.

Is it not probable that the dentine is more often saturated with septic products than we suspect, and the removal of which would lessen the number of our failures, particularly in cases of our younger patients? Of what real value is the peroxide of hydrogen as a detector of a septic condition, and as a destroyer of the same in the teeth? Let him who knows speak.

T. W. PRICHETT.

THE letter below explains itself. It is good news; and we hope our Michigan brethren will not be "weary in well-doing," and that others will be encouraged to follow the good example thus set. In Ohio it is not necessary to depend on the Board or Secretary, but any dentist or any individual, can prefer a charge and prosecute it. And it may be that this is true of the Michigan law. But all praise to Dr. Thomas, at all events.—ED. JOURNAL.

DETROIT, Aug. 9th, 1884.

Dear Doctor Watt:

Please mention in your next JOURNAL that the STATE BOARD OF DENTAL EXAMINERS have drawn "first blood" by the enforcement of our dental law against a "quack-traveling-tent-tooth-puller."

I, as Secretary of the Board, made complaint against him in the Police Court, where he was convicted and fined ONE HUNDRED DOLLARS. He appealed to the Recorder's Court, and he has just been tried there by a jury, and the decision of the lower Court is affirmed. They say they shall appeal again to the Supreme

Court; but I have no fear of the result there. They wish simply to gain time till he gets ready to leave town; but I shall now make a new complaint against him every day as long as he continues here. He pulls from one to two hundred teeth *gratis*, in a few minutes, and then sells a *nostrum* and takes from one to five hundred dollars a day. The fight was made on the point as to whether extracting teeth only could be construed to mean *the practice of dentistry*. The Court held the affirmative, and this is a *great point gained*; for numbers of men are going about with tents or wagons, extracting teeth as they travel.

Yours Truly and Sincerely,

GEO. R. THOMAS.

We are sorry to learn, as we do from the letter with the above, that Dr. T. is in bad health, not able to practice, and has not been for two months, and, further, that there is not much hope of an early resumption of active duty. But his work in the above case was better than practice. May our Father bless him in his good work, and speedily restore him to health.

Editor's Specials.

"Write the Vision and make it plain."

THE INVESTIGATION OF DENTAL CARIES.

Nothing occurring in our profession affords us so much pleasure as the researches into the nature of dental decay. When we came from the general practice into the specialty, we were surprised to find how indefinite were the views and opinions as to the nature and causes of dental caries; and we regarded it as somewhat disgraceful to the dental profession that so little was positively known. But, on a second thought, we were reminded that the disgrace, if any there was, rested still more heavily on the parent profession, in that there was almost total ignorance, and the utmost indifference, in reference to the most common disease known to humanity, and one that caused very much of the most acute suffering.

After finding that we could gain but little by research among authors, we could not rest content till we had made a

very elaborate and careful original investigation on the subject. We began our researches into it without any pet theory to bolster up, and even now, though we honestly believe that we know more than we did before our experiments, we have yet no theory to defend only as we believe it our duty to defend the truth. We give our opinions simply as our opinions, and ask no more for them than they are worth. And while in looking back over what we have written on the subject, we find sentences that sound rather dogmatic, we are able to give a good explanation of this fact by quoting from the preface of a controversial book, written by our uncle, James Watt, the Scottish chemist. He says: "If anything in this book seems too self-assertive or dogmatic, let the reader notice that this occurs because we omit the common pleading expressions, 'in my humble opinion,' 'if I mistake not,' 'if you will pardon me for the expression,' etc., all of which, though very polite, occupy space, and dilute the language." We try to give earnest expression to our views and opinions, as we thereby invite criticism, and encourage investigation and research. When a man gets terribly in earnest, and makes strong assertions, others are stimulated to inquire "if these things are so;" and, by the very strength of his assertions, the combative spirit is aroused in others, and he is vigorously criticised, and his theories are all the more likely to be thoroughly examined. If we have been of use to the dental profession, our usefulness has resulted from the above course of action. And all we ask of others is that they endure our criticisms with the same good nature that we have endured theirs. If they do there will not be any thing but good feeling in our discussions.

We have read with interest the article of our friend Dr. Searle, in the *New England Journal*, for July. And on the eternal principle that "the first shall be last," we notice at once, the last line of the article. He proposes "in another article" to "examine the chemical theory which teaches that caries is simply the decalcification of the dentine by acids."

Now, who ever taught such a chemical theory as that? If any one, we have forgotten the fact; but we are ready to aid Dr. S. in ruling out all such teaching. In black decay there is not decalcification to any extent worthy of notice, yet there is much else, according to the chemical theory. Also in white decay

there is much beside decalcification, which is present in but a restricted sense. In this the whole substance of the dentine is acted on by the agent or agents. Let it be borne in mind that the well informed advocates of the chemical theory do not, and never did, deny the ordinary presence of micro-organisms. They simply insist that they are not the primary factors in dental caries, and that their presence is not essential to its existence. (Prof. J. Taft, who is one of the most experienced and most competent microscopists in our profession, stated, at a late meeting of the Mad River Valley Society, that in some specimens of caries these organisms are not found. Others, competent to observe, give similar testimony.)

We have been in the habit of classing erosion with dental caries, and it is far more than decalcification, as the organic portion of dentine is removed as fast as the limesalts are. But we will not here insist on this classification of it.

In but one variety of dental decay is decalcification the leading characteristic; and that is the most common of all. In it the limesalts are mainly or totally removed, while the cavity of decay remains nearly filled with the organic materials of the dentine. But even in this variety, the advocates of the chemical theory hold that there is much more than "simply the decalcification of the dentine by acids."

By too many of our writers is the nature or province of chemistry overlooked. On page 241, in Dr. Searle's article, we find a slip indicating something of this. Near the bottom of the page he suggests there is no need to inquire "whether the acids are organic or chemical." Dr. S. is not lonely in the use of such phrases; but will our kind brethren bear in mind that no acids are more really *chemical* than are the organic acids. Careless expressions cause confusion of thought.

On this same page, we think Dr. S. is hypercritical in his notice of one of Dr. Miller's opinions. Dr. M. can take care of himself; but as we, in Ohio, raised him, and as he is better employed than most of us, we will be excused for what we say here. Dr. Miller is quoted as saying, "The bacilli penetrate far into the dentine, even into the finest branches of the canaliculi. Micrococci penetrate furthestest;" and to this Dr. S. adds "*i. e.*,

further than the minutest branches (?)." Nothing of the kind, Dr. S.; but *further into* the minutest branches.*

As we are not trying to be systematic in this article, we will notice some of the sentiments quoted by Dr. S. from other writers. On page 239, he quotes from Underwood and Milles, where they give the opinion "that these organisms attack first the organic material, and, feeding upon it, create an acid which removes the limesalts."

Dr. Miller, whose reputation as an observer is second to none, tells us that "there is a certain amount of tissue affected beyond that invaded by the micro-organisms;" and Prof. Taft, with as good instruments as are attainable, and with as much experience as any, in observing these things, tells us that sometimes, in well-developed caries, the micro-organisms are not present. (This reminds us of what we have remarked before, that observations made with high powers may be deceptive. The observers do not always see what they suppose they do. Were they all sure of what they see, they would not disagree.)

On page 239, in Dr. S.'s article, we find this when he is speaking of the researches of Underwood and Milles: "The failure of the chemical theory, by acids, to explain satisfactorily all the conditions present in caries, led these gentlemen to seek for the presence of organisms in carious dentine, with results that far exceeded their expectations."

Now, in this we have clear confession of the want of a full understanding of the "chemical theory" of caries. If any advocate of the "chemical theory" has denied the ordinary presence of organisms in decayed tooth substance, or held that acids explain all the conditions, we have overlooked the fact. But they claim that these germs are secondary in their action, and not essential to the decay. We do not believe it to be in their power to attack and destroy normal dentine; but when something else has overcome the vitality of the part, and decay has begun, then the germs get in their work. Take into consideration

* The canaliculi permeate the dentine throughout. A bacillus may penetrate a fine branch of the canaliculi a certain distance. A micrococcus may penetrate an adjacent one to a greater distance. That they act in this way is the teaching of Dr. Miller, and not that the micrococci go through and beyond the minutest branches, as intimated by Dr. Searle

the first of the "conclusions" of Underwood and Milles, as quoted by Dr. S. on page 239 of *N. E. Journal*. " . . . These organisms attack first the organic material, and, feeding upon it, create an acid which removes the limesalts." Must have the acid, it seems; but how do they know the germs *create* it? Chemistry is not a creation. And how will their conclusion accord with the fact that, in the most common variety of caries, the organic material remains in the cavity of decay, and so well preserved sometimes that, both by ordinary observation and the microscope, we can demonstrate its organic structure. If it were first attacked and fed upon by these organisms, in order that they may *create* an acid to remove the lime-salts, would it still be there and in such state of preservation? Some can't believe that Jonah was restored to the land of the living, undigested; but here is a story a good deal tougher. That this organic matter is eaten up—appropriated by the organisms—and that it still remains in its normal situation, retaining its organic structure so well that often tubuli are observable—well, we'll not try to reconcile the positions.

If the chemical theory of decay is the true one, it must always be borne in mind that chemical action is modified by various agencies or circumstances. It was formerly common for text books to devote a section or chapter to the consideration of "circumstances which modify affinity." And quantity of matter, cohesion, electric force, vitality, etc., were usually among the circumstances mentioned. The advocates of the chemical theory of decay recognize fully that these and others must be taken into consideration, in explaining appearances. A very solid tooth, in a very healthy patient, will not show exactly the same phenomena under decay as will be displayed by a soft, friable tooth in a patient of low vitality. And if micro-organisms are present, especially if numerous, the cavity of decay will not present the same appearances as if they were absent, as Prof. Taft and others claim they sometimes are. But all this says nothing against the chemical theory of decay.

In very much of the recent, and even in the present discussion of dental caries, there is an annoying indefiniteness, from the fact that so many speak of caries as an unit. Scarcely any diseases of the human race differ more widely—more distinctly—than do the varieties of decay of the teeth. Gout and small-pox

both sicken and prostrate the patients; and black and white decay both injure or destroy the teeth. And a third variety of decay is as unlike either as we can possibly imagine. All the varieties of caries are modified in appearance by the accompanying circumstances; and this is true of all the diseases known to the race. It sometimes happens that two, or three varieties attack the same cavity, if not simultaneously, successively. Still, our old teachers, such as Harris, Taylor, etc., had no difficulty in so classifying the symptoms and conditions as to demonstrate three varieties, leaving out erosion, which they often called "chemical abrasion."

At the bottom of page 342, in the article of Dr. S., we find a sentence, not directly on the question before us, perhaps, but which we wish to notice for cause which shall appear. It is as follows: "It has been shown in the laboratory of Prof. Heitzmann, that dentine has been dissolved and formation of normal tissue has taken its place. This has taken place by true physiological, though abnormal, vital processes."

This reminds us of a discussion of long ago. We could look it up and give specific facts and dates, but we are writing away from our library. At the time referred to, Dr. L. W. Rogers, of Utica, N. Y. (?), reported that he had put a gold plate in the bottom of an excavated cavity, where the pulp was not exposed, in such position that a space was left between the gold plate and the dentine, and that on removing the filling he found the space left under the gold completely filled by osseous material. We recollect that we took him to task, in the editorial pages of the *Dental Register*, for reporting this, and yet criticising us and others for holding that a healthy exposed pulp might protect itself by a deposit of secondary dentine. Has Prof. Heitzmann demonstrated what Dr. Rogers saw before the war? Possibly.

In the *Columbus Medical Journal*, for August, 1884, there is an article on phthisis, by T. W. Evans, M.D., in which language is used which very nearly expresses our views on caries; or, at least, our thoughts would be tolerably well set forth by simply changing the word phthisis to caries. On page 70, he says: "The parasitic theory of phthisis has not been proven; it has not been demonstrated that micrococci are invariably present in the disease. If it is possible for the disease to exist without the presence of bacilli, then the theory is untenable." So with

caries; and Prof. Taft testifies that he has seen well-defined dental caries without germs, and further, that the progress of caries bears no relation to the number of organisms present. Then, *the* younger investigator, Dr. Miller, claims that "there is a certain amount of tissue affected beyond that invaded by the micro-organisms." In other words, that the decay progresses and organisms follow it up, "but that large areas of softened dentine could be found that contained no fungi."

But to return to the article of Dr. Evans. He says: "If they (the organisms) are present, it is no evidence that they are the cause of the disease. It is no more rational to suppose that bacilli are the cause of the disease, and death to the patient (just because they are found post-mortem) than to suppose that the maggots that prey upon the dead carcass by the road side, are the cause of the animal's death." When we used this illustration, our friend of the *N. E. Journal* thought we claimed that the micro-organisms were genuine maggots.

But further from Dr. Evans. He says: "The chemical changes incident to death, make suitable soil for the development of vermin, and certain abnormal conditions of the system make the lungs a fit soil for the colonization of bacilli of tuberculosis (which may hasten the suppurative process). The fact of inoculation with bacillous matter, producing like disease, is wanting in evidence of the specific nature of the disease, as the disease has been produced by inoculation with matter known to be non-tuberculous. If the disease depends upon bacteria, to inoculate with fluids that are destitute of bacteria should not produce phthisis. Yet Panum has shown that the fluid may be poisonous after the removal of the bacteria; and Hiller has shown that the bacteria, when isolated from the putrid fluids, are harmless."

Dr. Evans tells us, also, as we learn likewise from other sources, that Dr. Spina, of Vienna, agrees with Koch that bacilli are always found in the sputa, but denies that they are always found in the tuberculous organs of man. He maintains that the bacilli are the *result* and not the *cause* of tuberculosis; and also the wide distribution of bacilli through the human body may readily explain their presence in diseased tissues, as they afford a favorable soil, as said above, for their development. He teaches that, in the body of any of us, there is probably not a portion a hundredth of an inch in diameter, where bacterial germs are not present.

It is said that if a blind bell-wether falls over a cliff, the entire flock, one by one, will leap after him into the sea; and the human race, more gregarious than are sheep, seems to act by a similar impulse. And this trait shows in medical science as plainly as in anything else. Hence, when one disease is satisfactorily explained by the germ theory, the members of the profession jump to the conclusion that all must be explained by the same theory; and they seem to forget that the forces of nature are still in existence. Let it be borne in mind that though micro-organisms may not be present at all points in matter, yet chemical affinity is in full force wherever matter exists. In illustration of this we will quote one more sentence from Dr. E.'s article. "I conclude," says he, "that as long as the normal state of things exists in the human economy, the living bacterial germs, in all parts of the organism, do not grow and multiply, but when a change occurs of the character of that which results in chemical decomposition, the bacterial germs multiply."

This principle applies to dentine as really as to any other tissue of the body. The changed layer between the organisms and the sound dentine, as described by Dr. Miller, is likely to be a very fertile soil for germ development.

But this, intended for an item, has become an article, and lest it grow to a chapter or essay, we'll close as we began, expressing our delight in and enjoyment of the recent and present investigations into the nature and causes of dental caries.

DR. MORRILL'S PAPER AND THE INDIANA STATE SOCIETY.

THE Doctor, it seems, reserved a joint right in his paper in reference to its publication, and has accordingly sent it for the JOURNAL. There is too much good in it to be lost, and we are pleased to give it place. It contains an unpleasant item in reference to an institution of which we have thought highly; and we could not be expected to think otherwise as it is, and has been, carried on by our former co-workers, pupils, and special friends. We allude to the advertisement calling for patronage to the college clinic. We do not believe the college faculty will propose to defend that advertisement. Indeed we think we have official

evidence that they will not; and that all sides may be heard we will quote the following from their late annual announcement:

“RULES

“FOR ADMISSION AND GRADUATION.

“All students will be received and registered, but an examination will be held in December, at which time all those found competent will be permitted to enter a senior grade; all candidates for the degree must be of this grade.

“All APPLICANTS FOR GRADUATION are required to have at least a fair common school education.

“Students who have attended one course in this or any other reputable dental college in the United States or Canada, will be admitted to the senior grade without examination.

“Five years practice, without proper qualifications, will not be considered equivalent to one full course, nor admit to senior grade without examination.”

As we published the decision of the Supreme Court of Illinois in a preceding number, which involved the reputation of the Indiana College, we regard it but fair to publish the following official action of the college. Our method of procedure in such cases is not to cover up and conceal, but to give all the light possible, as in this way truth will be vindicated. We do not see that the Illinois Court could have decided otherwise, but that does not decide that the Illinois Board did right in reference to the college. On that subject we give no opinion. But let the college speak for itself.

INDIANA DENTAL COLLEGE.

SECRETARY'S OFFICE.

INDIANAPOLIS, July 18, 1884.

Geo. Watt, M.D., Editor Journal:

DEAR SIR—The Trustees of this College have ordered that henceforth their Faculty shall require two full terms as a requisite for possible graduation; provided, however, that five years practice, with satisfactory preliminary examination upon practical dentistry, may be accepted as equivalent to one course at Dental College.

The Trustees have always exercised a rigid scrutiny and control over the methods of this College. The Faculty has always

been composed of capable men, of the highest professional and social standing. There has never been a single instance of irregular practice in the conduct of this College, and no person has ever made any accusation of such.

The College has done its work faithfully and successfully in teaching students to practice dentistry intelligently, graduating on one term those only who were thoroughly competent, and who would have been so regarded by other colleges.

No diplomas have been issued by this College, in any instance, except upon full attendance upon at least one regular course or term.

The change to two terms had been meditated by the Trustees for a year past, and was decided upon (before the decision was rendered by the Supreme Court of Illinois) as a matter of form, as nearly all of those graduated at this College had attended two full courses, or had been practitioners before attending College.

Having made the foregoing plain statement of facts, and duly advertised and announced conformity to the present requirements of the National Association of Dental Examiners, it is hoped that such graduates of the Indiana Dental College as may be located in your State will receive proper consideration and protection at your hands.

There have been but four honorary diplomas issued by this College to date.

By direction of the Board of Trustees, we subscribe,

Yours very truly,

J. E. CRAVENS,

Secretary.

WM. L. HEISKELL,

President.

Believing that the JOURNAL is more extensively read by the special friends of the Indiana College than any other periodical in the profession, we have been minute in trying to give all the light we can on the subject. We feel confident a better state of feeling will be thus promoted. Most of the discords in life result from partial concealment of facts. When there is evidence of concealment, the imagination takes wing and manufactures the most ghostly hobgoblins, and then claims that they are the things kept from view, while if brought to full light, they would be found "trifles light as air." "Let us have peace."

DR. ATKINSON'S BIG BILL.

WHILE President Blanco, of Venezuela, was sojourning in this city recently, staying at the Windsor Hotel, he thought it was a good opportunity to get some dental work done on his wife's teeth, and employed Dr. Atkinson, of No. 41 East Ninth Street. Dr. Atkinson also performed repairs more or less extensive on the teeth of Mrs. Blanco, two daughters and her sister. For his services he sent in a bill said to amount to \$7,000. At any rate the sum was so large that President Blanco concluded that it was worth while to endeavor to get some reduction in the price even if it were necessary in order to secure that end to submit the matter to the courts. When he started for Venezuela he put the matter in the hands of Boulton, Bliss & Callet, of No. 135 Pearl Street, and the Venezuelan Consul, G. A. Phillips, of No. 52 Exchange Place. None of these gentlemen could be found last night. Dr. Atkinson flatly refused to say anything about the matter. His sons, however, before the doctor's arrival, without making any admission as to the bill sent to President Blanco, were disposed to defend on general principles their father's right to charge extraordinary prices for his work because of extraordinary skill in his profession.

Dr. Atkinson once had a legal encounter with Agnes Ethel, the former well-known actress, now Mrs. Tracey, of Buffalo, over his exorbitant charges for operating upon her teeth, and got worsted, although he presented a formidable list of items and laid especial stress on his ability at building up teeth.

DR. ATKINSON'S \$7,000 BILL.

In connection with Dr. Atkinson's bill of \$7,000 for a small amount of work on the teeth of members of President Blanco's family, it was learned yesterday, that when the bill was tendered to General Blanco he sent a check for \$700, with a note stating that he thought a cipher had been added by mistake. Dr. Atkinson sent back word that there was no mistake; the amount was \$7,000 as first submitted. The General was somewhat surprised. He said that he was willing to give double the amount of his check, though that struck him as being rather a high rate for the work done. However, he was averse to have any dispute and

was about to send the full amount claimed, when his friends interfered and persuaded him to place the matter in the hands of Boulton, Bliss & Callett. This firm is now endeavoring to make a compromise with the dentist. Mr. Boulton yesterday refused to say anything about the matter. Consul G. A. Phillips, who was seen at the Venezuelan consulate, said:

"There is but little more to tell. Mr. Boulton is endeavoring to come to some agreement with the dentist and I presume the matter will shortly be settled."

"Is there any possibility of legal action?"

"None that I can see. General Blanco is on a diplomate mission and could not be sued or held. He is one of the most generous and freehanded of mortals, and the matter worried him exceedingly. He wanted to pay the \$7,000, but we would not let him. There was really very little work done, for he was going to Paris and while there on a long stay could of course command the best talent in the world. Dr. Atkinson took a remarkably long time over what he did for the family.

Dr. Atkinson is noted for his high charges. In the Agnes Ethel case, referred to in yesterday's *Tribune*, he charged about \$4,000 for filling a few teeth and was awarded a little over a third of that amount.

When the daily and weekly papers have got after a professional man, it is not "telling tales out of school" to refer to the cause of the excitement. One thing is noticeable: The popular mind is not ready for dentists and physicians to charge as high fees as lawyers do. The lawyers stand by each other, each one knowing that a large fee gained by one, opens the way for others to charge higher than they have been doing. But if a dentist or physician makes an unusual charge, his professional brethren join in hounding him by popular outcry. Neither dentists nor physicians get as high fees as they deserve; but it is not best, perhaps, to try to reach the proper altitude by a single jump. Not knowing anything about the quantity or quality of Dr. A.'s professional services in the case referred to, we have no opinion to give as to his charges. We give the above slips to show the style of criticism indulged by newspapers on a subject of which they know nothing; and elsewhere we may give a humorous illustration of an itemized bill, called out doubtless by the same case. And Mr. Phillips may be a very good consul, but listen to him,

as he tries to prove that very little work had been done: as President Blanco "was going to Paris, and while there on a long stay, could of course command the best talent in the world." Of course he could, even if he should send to America to get it.

INFORMATION WANTED.

OUR eyes have somewhat failed us of late, and consequently we have overlooked the evidence on which Dr. Underwood and others rest their opinions, or statements, that the micro-organisms "create," "generate," or "cause" an acid which decalcifies, or removes the limesalts, in the production of dental caries. We have files of most of our exchanges. Will some one of them refer us to the document containing the evidence wanted? We wish our request to be received as kindly as it is made. We wish to know, and accordingly ask.

A BILL.

BUT not a "bill of exceptions," though an exceptional bill.

We insert the following, from the *New York Life*, by way of showing something of the popular estimate of dentists' fees, and partly to amuse any of our readers who may be fatigued by hard work and solid thinking. In the meantime, if a lawyer had charged a seven thousand dollar fee, no editor would have thought of inquiring whether it was high or low. Few editors would have been competent to judge, and none would have cared. This quotation is intended for a witty "take off" of the bill referred to elsewhere:

Several of our esteemed contemporaries have recently made a prodigious fuss over a bill of \$7,000 which was presented by a prominent local dentist to a Venezuelan gentleman for four days' work upon the teeth of the latter's wife. It is very evident that our esteemed contemporaries have but little idea of the expense involved in gold-mining in Venezuelan back teeth, and as a simple act of justice we publish the following items. It will be borne in mind that the rules are those fixed by the College of Odonto-

logical Ethics, and are in vogue throughout the United States and Canada—

To inquiring patient's name, - - - -	\$5.00
To trying to recollect same, - - - -	2.50
To appointing hour for visit, - - - -	19.00
To recording same, - - - -	2.00
To keeping appointment with patient, - - -	25.00
Asking patient what's the matter, - - -	10.00
Requesting patient to wait a few minutes, at \$2 a minute,	70.00
Screwing up chair, \$2.50 a turn, - - - -	17.50
Telling patient to open mouth, - - - -	10.00
Punching tooth with crowbar, to see if it is sensitive, at \$5 a punch, - - - -	25.00
Finding out it is sensitive, - - - -	6.00
Examining tooth without mirror, - - - -	20.00
Examining tooth with mirror, - - - -	20.00
Use of cuspidor, - - - -	50.00
Laughing gas, at \$50 a snicker, - - - -	250.00
Stuffing mouth full of cotton, at \$50 a bale, - - -	150.00
Looking over box of instruments, - - - -	72.00
Selecting instrument, - - - -	300.00
Rolling up sleeves, - - - -	50.00
Getting to work on tooth, - - - -	960.00
Pulling out wrong molar, - - - -	500.00
Use of cuspidor, - - - -	50.00
Blasting and dredging, - - - -	450.00
Six bales extra cotton, at \$50, - - - -	300.00
Ascertaining which is right molar, - - - -	700.00
Jerking same, - - - -	1.00
Use of Cuspidor, - - - -	99.00
Showing tooth to patient, - - - -	50.00
Asking her how she feels, - - - -	150.00
Asking her if she'd like to have the tooth wrapped up in a nice white paper, to take home, - - - -	140.00
Being told "no," - - - -	50.00
Charging items in book, - - - -	500.00
Use of cuspidor, - - - -	60.00
Incidentals, - - - -	950.00
Interest on account rendered, - - - -	600.00
Wear and tear on nervous system, - - - -	250.00
Profit, - - - -	\$6,850.00
	150.00
	\$7,000.00

A SCIENTIST says that man is nothing more than a fly, except in the matter of avoirdupois. This may be so, but one pesky little fly can have more fun with a dozen bald-headed men than one man could with a million flies.

ANTISEPTICS AND DISINFECTANTS.

MOST of our germ theory brethren seem to speak as if an agent is antiseptic, simply because, and in proportion as it is a germ preventor; and it is a disinfectant only because, and in proportion as it is a germ killer. It is remembered as a dream, that when we recommended an antiseptic or disinfectant application to a carious cavity in a tooth, under certain circumstances, that it was claimed that we were yielding to the germ theory of caries.

But germs or no germs, both antiseptics and disinfectants have their places in dental, as well as in general surgery. Take, as an illustration, the action of chloride of mercury. Is it not well recognized that this corrosive sublimate will kill germs as well as much larger and more vigorous living things? But, Pereira, as well as earlier and later authorities, teaches us that it forms definite chemical compounds with protein substances. Pereira says: "Albumen forms a white precipitate with an aqueous solution of bichloride of mercury. This precipitate is slightly soluble in water, and consists, according to Lasaigne, of albumen 93.45 and bichloride of mercury 6.55; so that it is a *hydrargyro-chloride of albumen*. Fibrine forms a similar white compound with corrosive sublimate. When albuminous and fibrinous textures are immersed in a solution of this salt, combination takes place, the tissue contracts, increases in density, becomes whiter, and does not putrefy."

The definiteness of its combinations with these textures, and the slight solubility of the compounds, would explain its antiseptic properties: if germs were never seen or thought of.

In like manner the chemical action of antiseptics and disinfectants generally will give satisfactory explanation of their properties, even if germs are left totally out of consideration. Let another illustration be taken into the accounts. Sulphuretted hydrogen is not only a very offensive, but a deadly poisonous gas. The commercial chloride of lime is a reliable disinfectant when it is desirable to get rid of the gas. This owes its disinfectant value to the hypochlorite of lime it contains. At a meeting of the American Dental Convention, at New Haven, several years ago, a professor of chemistry was asked to explain its action, which he failed to do, stating that while chlorine is regarded as

the great bleacher, this salt does not bleach as chlorine. Its actions in bleaching and disinfecting are identical. The carbonic acid of the atmosphere takes the lime from the hypochlorous acid; and unless this acid is combined with a base, its component elements, oxygen and chlorine, are not able to hold together, and thus these two powerful elements are liberated in contact with the sulphuretted hydrogen, and each, in its nascent state, takes hydrogen from any known compound. In this case the result is that the sulphur is isolated, while water and hydrochloric acid are formed by the new combinations. In this way the poisonous and offensive gas is destroyed, and there is genuine disinfection, without the necessity of killing the smallest big-named germ in the world.

We take for granted that all germ theorists know and believe all this; but the JOURNAL has some young readers, and we wish them to have a clear understanding of these things, and so be able to start fair in the race of investigation; for it is not probable that the present disposition to investigate will be quiet any place short of a clear knowledge of the nature and causes of dental decay.

IS INFLAMMATION NECESSARY TO THE HEALING OF WOUNDS?

WE have not looked into Sir Astley Cooper's *Lectures on Surgery* for over thirty years, but unless our memory is very treacherous, he taught that a certain degree of inflammation is necessary to the healing of a wound either by "first intention" or by granulation. To define it he called it "adhesive inflammation." During a portion of 1847 and 1848 we were in a private class taught by the late R. D. Mussey, and in his private office and his lectures in the Ohio Medical College, as well, he taught that not only wounds brought together as for first intention but even open wounds would heal, under favorable circumstances, without the slightest inflammation. He called the process "modeling."

Lately, however, we see statements similar to this which we take from the *New England Journal of Dentistry*: "At a recent discussion of antiseptics, by the new Military Medical

Society of Woolwich, England, Surgeon Major Goodwin, in speaking of the well-worn theory of inflammation and suppuration, contended that they were no necessary result of a wound, and that repair could be obtained without them and with much less risk to life and limb."

Surgeon Mussey was recognized as "up with the times," but it may be that he was sometimes ahead. A few years after we left him we assisted him in the removal of a diseased mammary gland. After very carefully arresting all hemorrhage he laid the skin down, pressed it firmly into place, and with strips of linen saturated with collodion, he excluded the air and at the same time made firm and even pressure over the wounded surface. We watched the case till complete recovery, and there was never the slightest suppuration or other evidence of inflammation.

In 1850 we treated a deep seated ulcer on the tibia of a healthy man about thirty years old. A cut (or bruise) with a mattock was the original cause of the trouble. The ulcer was about an inch in diameter, and had been there about three months. We applied, on surgeon's lint, an ointment of protiodide of mercury, laid a piece of dry lint over it, bound it down with adhesive strips and covered the whole with fibers of cotton wool saturated with collodion. Although we saw the patient almost daily, we let the dressing remain undisturbed till the sixteenth day, when we found the wound perfectly healed with the inner dressings dry and pushed to the surface.

The results in such cases we think prove that ordinarily there is by far too much medication. And this is as true in dental as in general surgery.

INDIANA DENTAL ASSOCIATION.

WE are happy in the thought that this good society exists. It has a warm place in our affections, and we believe its members harbor no ill feeling toward us. If works bear witness, it is our best friend among the societies.

We failed to get a report of the discussions at the late meeting, partly from the fact that till near the time of convening we quietly hoped to be present, and do our own reporting. We can only say that the association held its twenty-sixth annual meeting,

beginning the 24th of June, in the lecture room of the college, with the President, Dr. M. H. Chappell, in the chair. Some fifty members were present at the first session, which was opened with prayer by Rev. L. G. Hay.

A board of censors was appointed consisting of Drs. J. B. Morrison, of Indianapolis; S. B. Brown, of Fort Wayne; and W. N. Wilson, of Richmond. The reports of the Recording Secretary and Treasurer, showed an active membership of 200, with an indebtedness of \$62.64. The President was authorized, by vote, to appoint six delegates to attend the forthcoming meeting of the National Dental Association of America, at Washington, D. C. Dr. N. W. Perce, of St. Louis, was elected an honorary member; and it was announced that clinics would be held during the sessions by Drs. How, of Philadelphia, and Matteson, of Chicago.

At the morning session of the second day, Dr. W. F. Morrill read a paper on Dental Ethics (found in this number of the JOURNAL). Dr. Houghton, of Indianapolis, read a paper on Facial Neuralgia; and Governor Porter gave the association a brief address.

Dr. Chappell delivered the annual address as retiring president, and Drs. How and Matteson gave the promised clinics on their specialties.

Officers were elected as follows: President, J. W. Jay, Richmond; First Vice President, F. M. Hamsher, Delphi; Second Vice President, D. L. Overholser, Logansport; Treasurer, Merit Wells, Indianapolis; Secretary, R. W. VanValzah, Terre Haute; Trustees, P. G. C. Hunt, Indianapolis; S. T. Kirk, Kokomo; A. C. Fry, Greencastle; Board of Examiners, J. Richardson, S. T. Kirk.

Dr. B. F. Johnson, of College Corner, was elected to membership.

The next meeting is to be held at Maxinkuckee, on the last Tuesday of June, 1885.

This was written for the August number, but was crowded out. We hope the members will not ascribe the delay to want of interest in the welfare of our pet society, *i. e.*, the society that pets us.

LACTIC ACID.

IN a foot note to Dr. Miller's article on Fermentation in the Human Mouth, in the *Independent Practitioner*, for June, 1884, and copied into the *New England Journal*, for July, it is asserted that "The chief work in the production of caries is performed by lactic acid; other acids are only auxiliary factors."

Our observations and experiments led us to a different conclusion, excepting one variety of caries; but we may be mistaken, and as man is fallible, others may be too. Let the researches go on till the truth shines out in the brightness of day.

In our experiments we always found that, in doing its "chief work in the production of caries," it took away the organic material of the tooth, nearly or quite as readily as it did its work of decalcification. But in the most common form of caries, as we have often said elsewhere, the organic portion of the dentine remains in the cavity of decay. We do not think that lactic acid does "the chief work in the production of" this kind of caries. But let the experiments go on, and truth will triumph; and we are ready to join in the eulogy of him who does most to hasten this triumph.

NOT GOOD EXTRACTING.

THE following we take from an eastern newspaper, and it saddens us to read it. That a professional man should so far forget the respect due to himself and the profession to which he belongs, seems strange. And that he should be such a coward as to wish for suicide, rather than face the consequences of his misdeeds, does not help matters. Suicide is not the remedy for any condition in which a man may be placed. But here is the item—

"ROBBING THE BOARDERS."

A Dentist Arrested in New York for Working his Lodging House.

NEW YORK, July 1.—Dr. —, a well known dentist of this city, and a prominent member of the dental society, was arrested to-day, charged with grand larceny, and held for trial. He had rooms in a fashionable boarding house. The boarders complained of being robbed. After considerable investigation the crime was

fastened upon him. He was arrested, and a number of pawn tickets were found upon him. In court he admitted his guilt, and declared if he had had a weapon when told of his arrest he would have ended his life."

"Speak gently of the erring—

Thou knowest not the power

With which the dark temptation came,

In some unguarded hour."

But sympathy for the doer does not approve the deed.

SAD MISTAKE OF THE TYPES.

IN Dr. Junkerman's article in our late July number two serious mistakes occur. In the third line from the bottom of page 314, and in the second line of page 315 we find red-like bacteria. They should read rod-like. And in the sixth line from bottom of page 315 the word sure should be rare.

We greatly regret any mistakes, especially when they destroy the sense. Sometimes the fault is in the copy; but even with good copy they may occur. It is a good plan for a writer to look over his manuscript and make plain all the indistinct letters he finds, especially the vowels. Not many months ago a good article was sent us which took more of our time to read than was required to write an article of similar length. We were not surprised when the foreman wrote us, "That piece of copy was a terror to printers." Yet the author of the article can write distinctly.

Dr. J.'s copy is fairly good, but as with most writers, his vowels are not distinct. But we should have corrected those glaring mistakes, even without copy.

Societies.

"Wherewith one may edify another."

CHICAGO DENTAL SOCIETY.

THE regular monthly meeting of the Chicago Dental Society was held at the Dental Infirmary, the first Tuesday in July.

Meeting called to order by President Harlan. Twenty-seven members and five visitors were present. Dr. J. W. Wassall was excused from duty, and Dr. A. W. Harlan consented to furnish a paper on the merits of "Gold and Tin, in combination, as a filling material." The following is a synopsis of the paper: "I assume that gold is, of all materials now in use, the best substance with which to fill the majority of teeth that need to be filled; but it is not practicable to use it in all cases, for the following reasons: *First*—Inability on the part of the patient to pay for such fillings. *Second*—Lack of physical strength to endure protracted operations. *Third*—The impossibility of making fillings uniformly good for the young, the aged, and the weak. *Fourth*—Though such fillings were always made they could not be considered permanent on account of the habits, age, or condition of the patient. *Fifth*—The folly of filling teeth with gold for the majority of children under the ages of sixteen to eighteen. *Sixth*—The certainty of failure to accomplish the desired object with certain teeth at all ages beyond the period of childhood. I would advise the use of amalgam very sparingly. Do not believe that it is good practice to use it in proximal cavities of bicuspid or molars, when the teeth are closely in contact. It is generally safe to use amalgam on the proximal surfaces of teeth when the adjacent tooth has been lost. Never use it in a tooth which has been filled with gold, unless the fillings touch. Tin may be used on the buccal surfaces of teeth, and for filling a quarter to one-half of a cavity on the proximal surface of a molar or bicuspid. Tin is useful for repairing gold fillings. Oxy-chloride of zinc and oxy-phosphate of zinc can not be used for a permanent filling. The latter, however, seems to be more durable in proximal fillings than the former. I have abandoned the use of Robinson's metal, and substituted tin, because it is easier to work under the instrument, and is not so liable to turn inky black.

The combination of gold and tin is last, but not least, in the consideration of filling materials. My method of combining the two metals is as follows: Take a sheet of gold and a sheet of tin, place the tin on the gold, then fold and refold, the last fold determining the surface to be exposed. The gold can be used externally or internally. The combination can be used in ropes, blocks, or cylinders, to suit the taste. I have almost wholly

abandoned the use of amalgam since adopting the use of gold and tin. I commend it for its density, the ease of its insertion, the fine finish it is capable of, its non-conducting and non-shrinking properties, the compatibility of the combination with tooth structure, and the large variety of cavities which may be filled with it. In addition, the chloride and oxides of tin are antiseptic, which is an advantage. This combination is desirable on the part of some in point of economy. It can be introduced in cavities as rapidly as amalgam, and the operator has no fear of there being a leak afterwards. In addition to this, the filling may be finished at the same sitting. Care must be exercised in introducing such fillings, to prevent the point of the instrument from chopping up the material.

DR. ALLPORT commended the paper, and said, filling teeth is reached in two different ways: First, by excluding moisture; second, having regard for the therapeutical qualities of a filling material. The combination recommended by the essayist is economical; but the important quality is its therapeutical effect over gold. Teeth will not decay under this filling when properly inserted. The oxide of tin is an antiseptic. Sulphide of tin is also present; and this sulphide of tin is not affected by the acids of the mouth, as it is an insoluble material. He considered the use of tin, at the cervical margins of cavities, good practice, but believed the use of tin alone better than the combination.

DR. CUSHING said: I am somewhat skeptical in regard to the therapeutical effect of any filling material. Good fillings are those properly adapted to the walls of a cavity.

DR. MARSHALL said: I believe in the therapeutical effect of filling materials; and this is found in tin. Tin discolors in a live tooth, because there is a circulation. The moisture coming from the tubules of the dentine is in sufficient quantity to produce oxidation, and this oxide of tin is a preservative of tooth structure. Dr. Harlan's method of combining the two materials is original, but I do not see the benefit of the combination.

DR. CROUSE said: I have had considerable experience in the use of tin in my practice, and am very much pleased with it as a material for preserving tooth structure. I do not believe, however, in the therapeutical effect of any filling. All filling materials will fail; and a large part of the failures can be attributed to defective manipulation. I fail to see the advantage of com-

bining gold and tin. I do not find any material better than tin for adaptability to the walls of a cavity. I do not believe that "bugs" crawl under good gold fillings and destroy them.

DR. ALLPORT said: Nine-tenths of cohesive gold fillings are in a leaky condition, from the fact that they are not well consolidated to the walls of the cavity. Another reason, it is often started in a rocking condition, thus permitting moisture to penetrate beneath the filling.

DR. BAKER said: I believe in the therapeutical effect of tin. I believe in the use of non-cohesive foil. Most of the cohesive foil is used in the form of pellets and ropes, which is wrong. To make successful fillings with cohesive foil, it must be used in the form of ribbons.

R.

CHICAGO, August 8th, 1884.

SOUTH DAKOTA DENTAL SOCIETY.

THE first annual meeting of the South Dakota Dental Society was held at the office of Dr. J. M. Gross, in Pierre, commencing Wednesday, June 11th, at 10 A. M. Dr. C. W. Stutenroth, Watertown, President, in the chair. After some preliminary business the President gave a very interesting address. The afternoon session was partly devoted to discussion of the address, after which a clinic was held consisting of gold work by the president and Dr. J. M. Gross. The operations were successful and highly gratifying to the members present. An evening session was held at the Wells House. After some miscellaneous business a very interesting essay was read by Dr. W. H. Barker, of Miller, entitled "The Coming New Departure." Three delegates and three alternates were then elected to attend the national dental convention of the United States, at Washington, D. C., July next. The following gentlemen were elected: Dr. R. R. Buchanan, Deadwood; Dr. C. W. Stutenroth, Watertown; Dr. W. H. Barker, Miller. Alternates, Dr. W. B. Steere and Dr. J. M. Gross, Pierre, and Dr. F. O. Sale, Huron.

THURSDAY MORNING SESSION, 9 A. M.

Motion, carried, that we proceed to the election of officers for the ensuing year. Officers elected: For President, Dr. C. W.

Stutenroth, Watertown; First Vice President, Dr. J. M. Gross, Pierre; Second Vice President, Dr. F. O. Sale, Huron; Secretary, Dr. W. H. Barker, Miller; Treasurer, Dr. C. R. Watt, Pierre; Librarian, Dr. A. E. Steere, Goodwin; Examining Board, Dr. W. B. Steere, Pierre, Dr. C. W. Stutenroth, Watertown, Dr. W. H. H. Brown, Yankton. Dr. W. B. Steere then presented a successful case of replanting an inferior molar which he performed in January, 1882. Motion carried that the society hold their next convention at Huron, to begin on the second Tuesday in June, 1885. Motion carried that this convention extend their hearty thanks to the dentists of Pierre and the N. W. stage company for courtesies, to Dr. Gross for the use of his office, to Chicago & N. W. and Chicago M. & St. Paul railways and Wells House for reduced rates. They then adjourned to the photograph gallery of Mr. Webster Tanner and had their photographs taken in a group. After that they proceeded to the steamboat landing and embarked on the steamer Jim Leighton, a free pass for a round trip excursion having been kindly furnished to the society by the Hon. Mayor of the city, Henry Blakely, who is the agent for the N. W. Stage and Transportation Co., visiting old Fort Pierre and the Indian village, Wicotipi. The evening was spent in social pleasures and looking over the great variety of dental goods sent to the convention by the dental depot of H. H. Molloy, of Minneapolis, and exhibited by their courteous agent, Mr. J. H. Hosmer. On Friday morning the delegates departed for their respective homes, highly pleased with their visit to Pierre and the present and future prospects of the society, which now numbers twenty-one active members.

F. O. SALE, Secretary.

CENTRAL ILLINOIS SOCIETY.

THE third annual meeting of the Central Illinois Dental Society will meet at Pontiac, Illinois, on the 9th, 10th and 11th of October, at which time the following program will be in order:

ESSAYS.

1. Causes of Failure in Dental Operations. F. H. McIntosh, Bloomington.

2. The Moral Obligations of the Dentists. W. A. Johnston, Peoria.
 3. Filling Teeth. J. Frank Mariner, Ottawa.
 4. Diagnosis and Prognosis. C. P. Pruyn, Chicago.
 5. Amalgams and their Poisonous Effects. Eugene S. Talbott, Chicago.
 6. Tin and Gold as a Filling Material. J. D. Moody, Mendota.
 7. A Young Dentist's Office Experience. G. H. Sherwood, Wenona.
- GARRETT NEWKIRK, M.D., Pres't, C. R. TAYLOR, Sec'y,
Chicago, Ill. Streeter, Ill.

NORTHFIELD, MINN., July 28, 1884.

Geo. Watt, M.D., D.D.S., Editor Ohio State Journal:

DEAR DOCTOR—The Minnesota State Dental Association held its first annual meeting in St. Paul commencing July 16, 1884, and continued three days.

The following officers were elected and installed for the ensuing year: L. W. Lyon, St. Paul, President; F. A. Williamson, Red Wing, Vice President; H. L. Cruttenden, Northfield, Secretary; J. H. Martindale, Minneapolis, Corresponding Secretary; A. T. Smith, Minneapolis, Treasurer. Executive Committee: H. M. Reid, T. E. Weeks, H. A. Knight, C. E. Hale, J. L. Jacobs. Membership Committee: C. H. Goodrich, W. H. Crary, J. E. Miller, I. C. St. John, A. M. Dixon.

The next annual meeting will be held in Minneapolis, on the third Wednesday in July.

H. L. CRUTTENDEN, *Secretary*.

Books and Pamphlets.

FERMENTATION IN THE HUMAN MOUTH—ITS RELATIONS TO CARIES OF THE TEETH. The Influence of Antiseptics, Filling Materials, etc., Upon the Fungi of Dental Caries; Their Pure Cultivation and Effect upon Some Animals. By Dr. W. D. MILLER, Berlin, Germany. Reprinted from the *Independent Practitioner*. Price 50 cents.

A neat pamphlet of forty-one pages, containing, as the above

quotation of its title page shows, the late papers by Dr. Miller as they have appeared in the *Independent Practitioner*. Nothing has been there presented that better pays for reading. We are proud of Dr. M. as an "Ohio man;" but he has outgrown this, and is OUR MAN, *i. e.*, he belongs to the profession at large. We have not time and space now to select specimen paragraphs and compare them with the views of others on the same subjects. If health holds out, we will notice some of his views at greater length than we could possibly do now; and as we cannot, at present, do justice to the pamphlet or its author, we say nothing about it now, except to advise the reader to send for it and read it with care.

THE FORMATION OF POISONS BY MICRO-ORGANISMS. A Biographical Study of the Germ Theory of Disease. By G. V. BLACK, M.D., D.D.S. Philadelphia: P. Blakiston, Son & Co., No. 1012 Walnut Street, 1884. Price \$1.50.

A book of 178 pages in the Publishers' usual fine style. It is composed of two parts, the first part composed of three lectures, and the second, of four lectures and an appendix, the subject of the latter being "Dental Caries; its Relation to the Germ Theory of Disease;" and twenty pages of the book are thus occupied.

The whole book is very readable, as the style is good, and the subjects discussed are interesting. The readers of the JOURNAL are not unfamiliar with the language of Dr. Black; and we will be allowed to say that, if possible, he has surpassed his average composition in the pages of this book.

The closing paragraph of the author's preface sets forth the spirit of the work, and is as follows: "The men who have been most instrumental in the development of this subject have given us little else than the experimental facts. These will satisfy the minds of but very few. Most of us appreciate any subject more if we understand why these things are so. It is the *why* I have sought to supply."

We would be glad to hear of the book in the library of every reader of the JOURNAL.

DROWNED.—It is sad to know that our friend Dr. A. M. Harlan, of Chicago, was bereaved of his oldest son last week as above. We stop the press to give the sad notice.

Our Aftermath.

PRUSSIC ACID AN ANTIDOTE FOR STRYCHNINE.—A correspondent of the *British Medical Journal* writes thus of the antagonism of strychnia and prussic acid: Some years since it became necessary to destroy an old dog. A large dose of strychnine was administered in bread, but the poison did not act very rapidly, and, as the animal's struggles and pains were distressing to watch, some hydrocyanic acid was poured in his mouth to complete the poisoning and hasten the end. To our surprise, the animal at once improved, and eventually recovered. I had forgotten this until the other day, when one of our cats was found dead in the garden, and the other dying, with all the symptoms of strychnine-poisoning, namely, constant tetanic spasms, and dilatation of the pupils, and insensibility to light. The cat was held firmly, and three or four drops of hydrocyanic acid dropped carefully on the tongue. An improvement was shortly visible; the pupils of the eyes became normal, the convulsions became less and less severe, and in a few hours the cat was all right again. I would add, that the cat was nursing a kitten, which apparently suffered no inconvenience from the poison.—*Boston M. and S. Journal*.

When an antidote to any deadly poison exists, all ought to know it. Sometimes a dentist may be at hand when a physician is not accessible; and a dentist is expected to know more than the laity, and he should not, in this case, disappoint public expectation. In 1850, Dr. Dresbach, of Tiffin, Ohio, reported a case in which a strong man had taken a large dose of strychnine by mistake. Spasms had set in when Dr. D. gave, internally, free and full doses of chloroform, and the spasms were almost immediately arrested.

GEORGE J. ENGELMANN, M.D., Professor of Obstetrics in the Post-graduate School of the Missouri Medical College, thus commends Listerine: "In the sick-room, especially the lying-in chamber, Listerine answers a most excellent purpose as a disinfectant, purifying the atmosphere and removing the offensive odor without substituting one almost equally disagreeable, as in the case with many of the remedies in use. As a mouth-wash, properly diluted, it is reliable and agreeable; diluted with water or glycerine it speedily corrects certain fermentative forms of indigestion, and is of more or less service in the catarrhal conditions of all mucous membranes. The happy effect of Listerine upon these less sensitive tissues, and the favorable reports of chemical and microscopical tests, emboldened me to try the new antiseptic in abdominal surgery, as I rather dread the effect of carbolic acid upon raw surfaces, and especially upon the peritoneum. In a most desperate and important ovariectomy it was used throughout, in the spray (full strength), for cleansing sponges, body, etc., and finally upon the pedicle, which, large and unwieldy as it was, was dropped; in the post-mortem examination this was found in a most excellent condition, as were all the other parts, especially the peritoneum, and the abdominal incision had united by first intention. In a case of Battey's operation, I used Listerine with equal freedom—three sprays constantly at work—but, as is my habit, not directed over the wound. On account of incessant bleeding from the stitches, much sponging of the

abdominal cavity was necessitated, and the result was as favorable as could possibly be expected. The abdominal incision united by first intention, and the patient recovered with but a very moderate peritonitis. I cite these cases more in detail in order that they may serve as a guide, and encourage others to try Listerine more fully in abdominal surgery."—*Obst. Gaz.*

HEMORRHAGE.—Heat as high as can be endured, instead of relaxing small bleeding vessels, as accords with the popular notion, contracts them. The case below illustrates this. We saw a case of hemorrhage after extraction, when the desired appliances were not obtainable, arrested by hot water. Excessive perspiration can be arrested for the time, by the same application, affording great comfort to the patient, while guarding against prostration:

EPISTAXIS ARRESTED BY HOT-WATER DOUCHE.—Dr. J. H. Stuart, of Minneapolis, sends us a report of the following case—"On July 14th last, I was called to see a laboring man, about thirty years of age, who had been bleeding at the nose for nearly twenty-four hours. The epistaxis seemed to have been caused by sitting in a draught of air, in the evening, with a portion of his clothing left off, which produced a stiffness in the nares. Various remedies had been used, but with no relief, and the loss of blood was sufficient to produce a very perceptible impression on his pulse, accompanied by a feeling of faintness. Having determined to try the value of hot water, I took with me apparatus for douching the nose, and having procured a pitcher of warm water (not as hot as I desired), I passed it in a continuous stream through the nares. The hemorrhage seemed to be checked for a while at least, but soon the bleeding side was filled by a clot, and again it showed itself both posteriorly and anteriorly. I procured another pitcher of water, as hot as I thought could be borne, and douched the nose as before. I continued the douche until the water escaping was almost free from any stain of blood—using perhaps a gallon. After this there was no bleeding, not even the formation of a clot in the nostril; but the patient, breathing freely through both sides, went to bed about 10 p. m. and slept till morning without any return of hemorrhage whatever. It is true I endeavored after each douching to throw a solution of tannin into the posterior nares, but I attributed little or no benefit to this procedure."—*Medical Record.*

"GENTLEMEN," said the Professor to his medical students assembled in clinic, "I have often pointed out to you the remarkable tendency to consumption of those who play upon wind instruments. In this case now before us we have a well-marked development of lung disease; and I was not surprised to find on questioning the patient that he is a member of a brass band. Now, sir," continued the Professor, addressing the consumptive, "will you please tell the gentlemen what instrument you play on?" "I blays der drum," said the sick man.

ATROPINE VS. CARBOLIC ACID.—Prof. Bartholow thinks that the physiological antagonism of atropine to carbolic acid, so valuable in poisoning by the latter, is not widely enough known. The reverse antagonism does not exist. In carbolic-acid poisoning, atropine should be given hypodermically. —*Col. & Clin. Record.*

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“A word fitly spoken is like apples of gold.”—SOLOMON.

DYSENTERY.

BY D. D. MOORE, M.D., XENIA, O.

[Read before the Xenia Academy of Medicine.]

At a very early period we find dysentery a common disease, well known to both physicians and the common people. Herodotus gives an account of an epidemic of dysentery in the Persian army, as it was marching through the deserts of Thessaly; and Hippocrates, in his writing, mentions this disease under the name of dysentery, which it still bears. He gave such a correct account of it, that it leads one to think that he had made *post mortem* examinations. The stools were carefully examined, and, by means of them, a differential diagnosis was made as to the seat of the disease. He and Galen give the most accurate description of the special pathology, according to the accepted views at that time. The only thing that is very new is the idea of its contagiousness, especially by means of the stools, which had been unknown formerly. Sydenham, also, gave a description of the disease. From his observations during the London epi-

demic of 1669 to 1672, he concludes that dysentery is a general affection, a fever localized in the intestines, where the acrid juices of the blood pour out of the open veins, and give rise to the intestinal irritation. His treatment is directed to getting the acrid juice out of the blood.

O'Brien was the first, so far as we know, to give the idea of pseudo-membranous inflammation of the intestines, in this disease, or, as some call it, diphtheritic inflammation. Dysentery is an inflammation of the large intestines, of a mild, moderate, or severe character. But many cases of dysentery cannot be regarded as a simple inflammation, because the development and propagation of epidemic dysentery show that irritative causes, which give rise to this particular inflammation, are developed only under certain conditions, and may be considered as specific. We see, in this disease, a great many men made sick, exactly in the same way; in other words, they are infected.

On the other hand, the majority of cases of sporadic dysentery are to be considered as local affections, arising from noxious influences, but are not distinguishable, anatomically, from cases arising from infection. The climate has much to do with epidemic dysentery, as it seldom occurs in the temperate zones. The disease finds its real home in the tropics. Africa, the West Indies, and part of South America, are dysenteric countries. To a certain extent we also find continued high temperature in connection with our northern epidemics of dysentery; for, in the descriptions of it, we find stated that the summer had been very hot during a large part of the year of the epidemic, or during the year preceding it. The fact that dysentery occurs in some parts of the tropics, and not in others, shows that not heat alone, but other factors also go to make up the cause of the affection. Its occurrence in our climate could be referred to heat alone, for we can say that it is in the summer and fall that the effects of long continued high temperature are felt, were it not for the fact that epidemics have occurred when the spring and early part of the summer had been cold and wet.

In view of these facts, we must conclude that the cause of an epidemic of this disease depends on a combination of circumstances. A certain climate, a certain temperature, a certain season, and a favorable situation.

Another important question is whether this disease is con-

tagious or not. Sporadic dysentery is not considered contagious. But it is the opinion of many, if not most writers, that epidemic dysentery is a contagious disease, that it is transferable from one person to another. Nearly all say that it is contagious, later in the course of the epidemic, especially when many of those affected are crowded together.

SYMPTOMS.—It is impossible to distinguish between epidemic and sporadic dysentery. We can only look to the severity and extent of the disease, and these are sometimes well marked in the sporadic form. And some of the epidemics are rather mild, so that it is hard to distinguish between the two. The disease usually begins with a diarrhœa. This lasts for a few days. The stools are sometimes frequent, from four to eight in the course of the day, and are of a yellow or brown color. These are accompanied with more or less abdominal pain. The appetite is but little disturbed in this stage, though in some of the severer cases it is completely lost, with more or less nausea and vomiting. From the fourth to the sixth day the diarrhœa becomes worse, accompanied by chilliness and heat, with weakness and discomfort. The desire to go to stool becomes violent, and the abdominal pain becomes very severe. The desire to go to stool is almost constant, the patient can resist it but a few minutes, and the desire is not relieved by going. The straining and burning become violent in the rectum, and only small quantities are passed. The discharge at this stage is partly feculent, but is watery, and contains mucus streaked with blood, and is passed in the form of a tough, gelatinous mass. The stools, at this stage of the disease, are passed very frequently, from ten to twenty times, or more, in the course of twenty-four hours. In moderate cases the disease lasts from six to eight days. The patient is usually better in the forenoon than in the afternoon. Every day the patient becomes more exhausted, and loses flesh. In severe cases the heart is weak, pulse small, and the extremities cool; and your patient will die unless relieved in a short time. If the patient convalesces, the stools will become less frequent, contain less mucus and blood, and will be mixed more or less with fecal matter. The tenesmus will gradually give way; the heart grows stronger, and the patient will get better every way.

PATHOLOGICAL ANATOMY.—The dysenteric process consists of an inflammation affecting the mucous and sub-mucous mem-

branes, and, in severe cases, also the other coats of the intestines, and it takes two different forms, the catarrhal and the diphtheritic or fibrinous. The catarrhal is divided into three stages: 1st. That of sero-purulent. This begins with hyperemia of the mucous and sub-mucous tissues. Externally the intestines are not changed. After removing the contents of the intestines, the mucous membrane is found to be covered with a thick layer of mucus, streaked with red, and is easily washed off. The membrane is of a deep red color, with numerous blackish red points. The membrane is more or less folded, and the *villi*, in the small intestines, are larger than normal.

Second stage, or the stage of sero-purulent infiltration. The mucous membrane, in this stage, is more swollen, paler, and of a whitish-red color, with red rings, which surround the follicles, which appear as small, white knots. The sub-mucous layer is thickened very much, and, on pressure, exudes a considerable amount of serous fluid. The muscular layer is thickened with serous infiltration, and has a wavy outline.

Purulent softening of the mucous membrane, or the third stage of catarrhal dysentery: The mucous surface now presents an irregular appearance. On portions of the intestines, of greater or less size, are found great numbers of reddish or yellowish-brown spots, of various sizes, and covered with a gray, or greenish substance. The changes around the follicle give a very peculiar appearance to the sub-mucous layer.

SECOND FORM.—This consists of a fibrinous exudation, or, as it is called by Virchow, diphtheritic inflammation. This is described as follows: The whole of the large, and the lower portion of the small intestines, externally appear to be of dark red color. The fine vessels of the serous covering are injected, and the whole of the intestine that is affected feels stiff, hard and solid. The opening through the bowel is very much diminished in size, and the walls are much thickened. In the severe forms of dysentery, gangrene of the walls of the intestines is nearly sure to follow, unless death takes place before this stage is reached.

The DIAGNOSIS of this disease rests on the characteristic stools, pain in the abdomen, and tenesmus. The duration of dysentery is from eight to thirteen days. Recovery is usually complete in about three weeks.

PROGNOSIS.—This, in the sporadic dysentery of our climate is usually favorable. In the epidemic form it is not so favorable. The percentage of the death rate is from twenty to forty, according to the climate, and the severity of the epidemic.

TREATMENT.—The patient should be kept in bed, because the movements of the voluntary muscles cause peristaltic action of the bowels, which increases the motions, to the annoyance of the patient; and it also acts injuriously. The bed and linen should be kept clean. The anal region should be frequently washed. All the vessels should be kept clean, and disinfected. The diet should be of that kind which is easily digested and nutritious, which may consist of milk, soups, essence of beef, etc. Drinks should always be lukewarm, because cold drinks bring on painful contractions of the transverse colon. One of the chief indications in the treatment of this disease, is to keep the inflamed part at rest. This I think is best done with some of the preparations of opium, either by the mouth or rectum. Cathartics, of the milder kind, are useful for the purpose of keeping the bowels free from irritating substances. Ipecac is held by many to be a specific in this disease. It is given in doses of from ten to twenty grains. Injections of a soothing nature, with narcotics and astringents, play an important part in the treatment of this disease.

This paper, like some others read before the same society, is intended to be mainly elementary, recognizing the unhandy fact of treacherous memories. Before reading the paper, the author gave us an intimation about as above. All diseases of the mucous membranes greatly influence the teeth. As this paper is brief and somewhat elementary, we lay it before our readers mainly for the sake of the young. When you hear of one of your regular patrons having dysentery, give attention to the teeth as early as you can.

Ed.

EXPERIMENTS ON MODELLING COMPOSITION.

BY STEWART J. SPENCE, D.D.S., SAN FRANCISCO.

In these experiments two kinds of the material were used, a hard and a soft. Four simple experiments were first made to

test its elasticity, pliability, expansibility and ductility, as follows :

A—*To test its elasticity.* Softened pieces in hot water, and rolled into ropes, each about an inch thick, and six inches long; holding one end down on the table, stretched the piece about an inch; each readily shrank back about one-sixth of an inch.

B—*To test its pliability.* Rolled it out as before, and placed an end of each piece projecting about two inches over the edge of a table. The soft readily bent down to the perpendicular, and the hard bent nearly so in a few minutes.

C—*To test its expansibility.* Rolled out a rope about an inch thick and twenty inches long, and while warm placed it on a table, each end touching a barrier. In half an hour it had shrank enough to admit a silver five cent piece at each end.

D—*To test its ductility.* Pressed the root of a tooth up through a mass of the material; the surface for some inches surrounding was raised thereby.

These primary tests being made, I proceeded to more complex experiments :

1st. A shallow flanged tray was filled with the hard composition, and a plaster model pressed into it a little distance, leaving exposed the upper labial and buccal surfaces, against which the material that had overflowed the tray was now pressed by the finger; *as soon as the pressure was withdrawn the material withdrew also.* This is partly due to its pliability permitting it to yield to the force of gravitation, but chiefly to its elasticity; for when afterwards pressed downward away from the cast, it shrank back again *upward*. Thus we see that even in taking an impression of the inferior arch, the material may not be in contact with the gums, unless held so by the tray, or digital pressure. (It is not safe, I think, to rely on the latter.)

2nd. A similar test was made with the soft material, which fell away from the model very quickly. Its lack of rigidity and rather high specific gravity cause it to yield readily to gravitation.

3rd. The next experiment had reference to the effect of this last mentioned force on the impression of the palate. Hard composition was placed on the tray, and the plaster model pressed into it, the posterior border of the tray being brought within an eighth of an inch of the model, thus forcing out a mass of the

material backwards, *after a few minutes the material had fallen away perceptibly from the palate of the model.*

4th. A similar test was made with the soft material, with increased bad results.

5th. A similar test was made, but varied in having a tray *which extended far back*; hard composition was used; this time the falling away from the hard palate was not perceptible. The pliability of modelling composition is to be dreaded in removing impressions (especially when teeth remain), both in detaching the material from the tray, and in its drawing out of shape around the teeth.

6th. A cast of a lower full natural denture was pressed into soft composition in a lower tray, and on being withdrawn it detached the material from the tray, raising it about an eighth of an inch.

7th. Hard composition was more successful; but it yielded in a test.

8th. Where a cast was used on which a single bell-crowned tooth remained. *To avoid this the material should be attached to the tray by heating the tray over a flame.*

9th. An impression was taken of two teeth with a dove-tail space between them. After removing the impression, it would not readily fit back again, thus indicating that *the elasticity of the material adapts it for impressions of slight undercuts*, because it returns to some extent to its shape. But its pliability and ductility unfit it for partial cases where the undercut, or bell-crown, or dove-tail is considerable, because *on being removed it draws out of shape, not only the portion in immediate conjunction with the tooth, but also much of the surrounding surface*. This objection seems sufficient to contra-indicate it in most partial cases. Still if the hard material is used, and not withdrawn till thoroughly cold, this dragging is comparatively slight, as a moment's reflection will show, it being very ductile while soft but brittle when hard.

Allow me to digress to notice the theory that the dragging of wax, etc., in partial impressions, provides for the easy insertion of the denture, and that models from such impressions should be used untrimmed. This teaching seems clearly erroneous, because, in inserting partial dentures certain movements (tilting, springing, etc.), obviate the use of the file to a great extent, and plates thus inserted are frequently aided in their retention.

The hardness of modelling composition is apt to produce a difficulty where there is much excess. The excess overflowing the rim of the tray may push out of position the buccal and labial muscles, causing them to drag with them the membrane which unites the cheek and gums, and thus prevent a close fit at the border of the plate. To avoid this the impression should be withdrawn before fully pressed to place, and after being slightly chilled, the excess cut away by a sharp razor, then re-warmed and returned to the mouth. The posterior excess should also be removed.

I am satisfied that more than half the failures with it arise from its being removed too early from the mouth, and that the instructions accompanying it are mainly responsible for this. The time required by the hard kind is less than by the soft, but is still at least four minutes in edentulous arches, and about seven where teeth remain; varying, of course, with the quantity used, etc. This may be lessened by injecting cold water, without danger of warpage. The cheek should be distended by the operator's finger so as to hold the water.

10th. To test warpage sulphuric ether was sprayed on a rope about an inch thick, and a foot long, without perceptibly warping it.

Where strong compression is required to equalize the pressure of a full plate on an irregularly hard and soft mouth, this composition used hard and with strong pressure is unparalleled as an impression material.

With regard to its ulterior uses, the writer has found it well adapted for duplicating models, but his experience with it for base plates and articulating impressions has been decidedly unfavorable.

In summing up it may be said of this material that it requires more skill and acquaintance with it to take a *correct* impression than either plaster or wax, but if understood is very useful and nice to use. Its elasticity is valuable where undercuts are slight; but its ductility contra-indicates it where they are decided. Its hardness recommends it where strong compression is required. Its slight shrinkage in cooling is useful in counteracting the expansion of plaster. Trays used with it should have flanges suited in height to the mouth, and should extend far back. The composition should be made to firmly adhere to the tray; surplus material should be avoided, and if present removed by a

razor. Never should the impression be finally removed till thoroughly cool.

The harder material proved itself in these experiments to be the better in almost every instance.

CEMENT FILLINGS.

BY C. EDMUND KELLS, JR., D.D.S., NEW ORLEANS.

ALTHOUGH the various forms of oxy-chlorides, oxy-phosphates, etc., are not quite limitless in number, still I fear life is too short for any one practitioner to try them all. For my part, they are an important factor in the success of my practice; and here are those I use, and where I use them. In my cabinet are found—

1. Hill's oxy-phosphate of zinc.
2. Agate cement.
3. Richmond's monogram cement.
4. Guilloi's cement.
5. Houghton's os artificiel.
6. Royal's Neosteon.

Each of these finds a place to which it is adapted, and which it alone can fill.

HILL'S OXY-PHOSPHATE has been used with satisfaction for about three years. It causes no pain, as a rule, when inserted in teeth however sensitive, providing the nerve is not actually exposed, and has proven quite durable. It is used in temporary teeth, where work has not to be done "like lightning," and in which amalgam can not be inserted with satisfaction. Also in permanent teeth which are attacked by caries immediately upon eruption, in which cases the cavity margins are not hard enough to stand the pressure of gold. Again, it is used, when, for any good reasons, none of the permanent materials can be relied upon.

I have made it an invariable practice to fill, when possible, all pulp cavities with this or other cement, never allowing any metal to fill the body of a tooth. My theory being, for thermal reasons, "The less the metal, the better the tooth." Hence all large cavities, even where the pulp chambers are not involved, are filled partly with oxy-phosphate, and the gold inserted upon

that. This cement is usually chosen, as it will harden in ten minutes, and the operation can be completed at same sitting.

AGATE CEMENT.—The principal qualities this material possesses, are ease and quickness of manipulation. Hence, it is best for the lower teeth of children, who are like "eels," when they get into the chair; for it can be inserted in much less time than the oxy-phosphate. These good features are offset by the pain this filling causes in all teeth that are at all sensitive, which pain lasts, at times, perhaps only five minutes, while at others, as long as one or two hours. I also use this filling material as an obtunder of sensitive dentine, by inserting it in a partly prepared cavity, in which great sensitiveness obtains. Although painful at the time, in three or four weeks it may be removed and the cavity thoroughly prepared with comparative comfort to the patient. Upon grinding surfaces this filling may prove quite desirable; I have seen a few cases where, after five years of service, it is still good. But when inserted in large approximal cavities, it is quickly dissolved at the cervical margins, and a bad state of affairs ensues. In such cavities, I have now completely abandoned its use. Owing to the readiness with which it may be handled at times, I use this also as a lining of large cavities, as before spoken of in regard to the oxy-phosphate.

RICHMOND'S CEMENT.—Has been in use only a few months, and while in its general characteristics it greatly resembles Hill's oxy-phosphate, yet it works much more kindly under the instrument, and requires more time to harden. If it proves as resisting to the fluids of the mouth as the other, it will, in time, almost supersede it in my hands. For setting crowns I use this exclusively.

GUILLOR'S CEMENT.—The usefulness of this filling material lies in the slowness of the process of setting, therefore adapting it to the filling of root canals, after the apices have been securely sealed by some other material. This is the only service I require of this cement.

OS ARTIFICIEL.—This being a very white filling, is placed under thin enamel in the incisors, capping with gold. It brightens up such teeth to a great extent.

ROYAL'S NEOSTEON.—Is used mixed with kreosote to the consistency of cream, to cover all exposed nerves, deemed worthy the attempt at preservation. The same mixture is also applied

to the floor of any very deep cavity wherein exists great sensitiveness.

In my practice I have not found any cement filling, that, as a non-conductor of heat, is a success. Where possible I insert a thin layer of Hill's stopping between the cement capping of an exposed nerve and the superimposed metallic filling.

UNSUCCESSFUL DENTURES—THEIR CAUSE AND THE REMEDY.

BY HASKELL, CHICAGO.

THE causes are various, and often arise from the dentist's failure to comprehend all the conditions necessary to success.

Among these conditions are the shape of the jaws, their condition, the relative position of jaws; the remaining teeth, if there are any, their position, etc., and last, though not least, the patients themselves.

There are some mouths one could almost throw a set of teeth into, and not fail of success. Then there are mouths that require all the skill and experience the dentist can bring to bear, and all the patience and perseverance the patient can exert, and even then Mrs. B.'s set will not prove as satisfactory as Mrs. A.'s set, simply because the conditions are so unlike—in other words, Mrs. B. has not Mrs. A.'s mouth.

A very long jaw nor a very broad one is as favorable as a medium. A very deep mouth, or a very flat one, is not as favorable as a medium. A very hard nor a very soft one is as favorable as a medium. When there is a combination of the medium in all these three conditions, there is a very easy success.

On the relative position of the jaws, much depends. If the lower jaw closes under the upper, you have plain sailing. If it closes outside, the problem becomes difficult. If together with the closing outside the upper jaw has absorbed, until there is nothing left but a flexible ridge, the difficulty is greatly enhanced.

If the teeth are remaining in the lower jaw, especially only the six front ones, the difficulty becomes still greater, because the

upper teeth must be set to accommodate the condition of things; whereas, if the lower teeth were all out, new ones could be arranged to allow of the upper ones being set at a different angle. Of course I do not advise the extraction of the lower ones for this purpose.

If there are remaining in the lower jaw, the six anterior, and one or two bicuspid on one side, and none on the other, there will inevitably be trouble, because if you do not put in a partial lower set, the upper will be constantly displaced, and if you put in the partial lower, it soon settles from continued pressure, and the pressure upon the upper set is all on the side of the remaining bicuspid, which, no matter how sound they may be, are an intolerable nuisance, and worse than useless. The sooner they are removed the better for the patient's best interests. Of course a single natural tooth upon the opposite side would remedy the difficulty. In such cases a crown put upon a root, if one remains, would be worth a hundred times more than it would cost.

Faulty articulation is oftener the cause of trouble than the misfit of plates, so that an otherwise faultless denture is rendered almost useless. Many a time has a patient come to me for a set of teeth, when, with a few moments grinding, I have remedied what seemed to the patient a looseness or misfit of plate.

The front teeth should never be allowed to strike, when the set is adjusted in the mouth, because, if they do, within a few months, more or less, as the jaw presses forward, they will strike first back of the overlapping uppers, and before the back ones come to a bearing the plate must be displaced.

Neither should the last molars come to a bearing, for as the plate settles they will crowd, and if there be a lower plate, will cause it to irritate; and the dentist, to relieve it, will often file away the plate, instead of shortening the tooth above it.

Let the bearing be upon the bicuspid and first molars, and leave a space of a sixteenth to an eighth of an inch in front, according to circumstances; more if the jaws be very yielding, than if they are hard.

If the lower jaw is prominent, set the teeth well in, but not *back* of the upper—in other words, do not let the cuttings edges, overlap either way, neither let them come close together. And the force of the bite should come under the ridge as much as possible, all around.

In order to secure the best possible results in articulation, or in other words, in usefulness, plain teeth only should be used. While there are occasional cases in which the gum sections can be used, infinitely better results can be secured artistically and practically with the plain teeth. If the pink rubber shows in some cases, it is better to sacrifice a little in the color of the gum rather than everything else, for the sake of the porcelain gums.

Study well your case, and take every possible advantage of the conditions. It is well to see your patient, if possible, after a week, to see if the articulation is correct. Never fail to notify the patient, when the work is inserted, that if there is any irritation of the membrane, to come and have it relieved, and not attempt to endure it, as it is never necessary.

For other remedies for unsuccessful dentures, see article in this number of the JOURNAL, entitled, Fitting of metal plates made easy.

FITTING OF METAL PLATES MADE EASY.

BY HASKELL, CHICAGO.

THE impression very generally prevails that it is much easier to succeed with rubber than with metal plates. I claim that it is just as easy to fit a metal plate, and make a successful and satisfactory set of teeth, as it is to do so with any other material. But in order to succeed the methods and conditions must all be fulfilled.

And first as to the *impression*. Whatever may be said as to "modelling compound" in some cases, I am *sure* of a perfect impression in all cases with plaster. No first impression in wax is necessary, but is often very objectionable, as the plaster sometimes breaks away, and, if in places where *thin*, it is sometimes impossible to replace it.

Scrape a thin film from over the hard palate, varying in thickness according to the condition of the *alveolus*; if *it is hard*, take off but little; if it is flexible, take off more.

From the model, or cast, scrape from the posterior on both sides of the hard palate, leaving *that* untouched.

Prepare the cast for moulding with flaring sides, so that it

will *drop* readily from the mould, as it will deliver itself without injury to the mould better than one can draw it out.

Use always for dies Babbitt metal, as it is the only metal that has all the requisites for a dental die, only be sure you get a proper Babbitt. There is no difficulty in doing this, as the dental depots now have it made from a proper formula. If you cannot get such make it as follows: 1 part copper, 2 parts antimony, 8 parts tin, melting the copper and antimony first, then dropping in the tin, and turning off at once. Melting in a crucible in a forge. The Babbitt will melt over an ordinary heat. For counter die use lead with one-eighth to one-sixth of tin.

It will seldom be necessary to make a second die. You will find your plate will fit the plaster cast, will fit the mouth; will feel easy, and have a suitable adhesion.

The only point to guard against is to see that the plate does not bear hard upon the hard palate at the rear, and also that it is close enough to exclude the air.

If success has thus been secured through a long practice, and that too very largely in continuous gum, with its well-known weight, it would seem that the theory was correct.

LAMB STEAK VS. SOUND TEETH.

BY A. BERRY, D.D.S., CINCINNATI.

A FEW days since a man, about forty years of age, called and said, "Three weeks ago, when eating lamb steak, I got a small piece of bone between my teeth and split one that was sound in the middle; and this evening, eating lamb steak, I had a similar accident happen to another sound tooth."

His teeth were a little smaller than the average size, nearly all free from caries, and in healthy condition. Those broken were the anterior superior bicuspid. The first had the inner cusp, with nearly half of the crown split, the fracture extending beneath the edge of the gum. The patient went to the nearest dentist, who detaching the loose portion of the tooth, and finding the pulp chamber opened, explored it thoroughly with an instrument, and said the tooth must be removed. In attempting to extract it, he broke off the remaining part of the crown, and

after his forceps had slipped from the roots several times, without moving them, he relinquished his efforts.

The last tooth broken was split like the other, but the fracture did not extend to the pulp cavity. The loose portion, held *in situ* by the gum, was removed, the sharp edges of the portion of crown left were filed away, and the patient advised to let it remain, see what would come, and govern himself accordingly.

He was reminded that the carnivora have sharp teeth closing past each other like scissors, for cutting flesh, while human teeth, excepting the front, like those of the herbivora, meet together for grinding their food, and therefore we should not eat animal food. To this the patient said, "If you had heard me, when I split this tooth, to-night, you would have thought I would never eat meat again."

Editor's Specials.

"Write the Vision and make it plain."

DISCOURAGED!

YES, and *cast down!* It was our lot, at our entrance into the dental profession, to be called on, with almost no preparation, to give a course of lectures on chemistry in its relations to dental surgery. At first but a temporary arrangement was made, and when our engagement terminated another took the place for a time, and at the close of that year we were selected to fill the place of Professor of Chemistry, and by a unanimous vote without nominations. We believe we made the first attempt to adapt a course of lectures to the wants of dental surgery, as our predecessors gave the same that they had prepared for medical students. We resigned, and were re-appointed, were transferred to another professorship, but soon placed back again, were elected to the same, or similar duties in other cities, and we regarded these things as signs of appreciation, and indulged the vain fancy that we had shown up as a good teacher of chemistry in its application to dentistry.

But now, when our teaching time is over, when it is all too late to retrieve character, or make amends, to find out that, as a

teacher of chemistry, we proved a total failure, is trying in the extreme. And to be led out, and shot in the back, with our own gun, in the presence of our friends and former pupils, is not pleasant to think of, however just the penalty.

We have full demonstration of our lack of ability to teach in the fact that so few in the profession understand our views and opinions on dental caries. About the close of 1856, or the beginning of 1857, we finished a long, tedious and worrying series of experiments, on this subject. Soon afterward we tried faithfully to lay our conclusions before the profession with both tongue and pen. We have repeated many of these experiments, and have conducted new ones, yet have not seen fit to make any very serious changes in our opinions as originally set forth. Sometimes through the periodicals, but very often in meetings of societies, we have explained, at length, the positions we maintain in reference to caries. Now the reader must not think, for a moment, that we are discouraged because not many in the profession *believe* our theories. The discouragement arises from the fact that so very few *understand* them. As far as we have been able to investigate, those who understand believe. We cannot recall a single exception.

Bear in mind that we had nothing to do in classifying the varieties of dental caries. This was well done before our entrance into the profession of dentistry. Nor had we anything to do in originating belief in what is known as the *chemical theory*. This was generally believed in the profession when we became a member of it, though we did not then believe it. But when we became convinced of the truthfulness of the chemical theory, we began our inquiries to ascertain what special chemical agent produced, each variety of chemical action. And we are surprised that, to this day, a majority of our profession speak of caries as a unit. Constipation and cholera are more alike than are black and white decays.

This that we now say is suggested by some complimentary remarks of Doctor Talbot, of Chicago, at the late meeting of the Illinois State Dental Society. On page 154 of the printed *Transactions*, Dr. T. says: "It seems proper, at this time, to review the acid theory of decay as presented by our friend, Dr. Watt. I propose to show the fallacy of the theory demonstrated by his own statements. His article in the OHIO DENTAL JOURNAL,

of September, 1882, page 410, says: 'According to my own observation when the buccal fluids present a decidedly alkaline reaction this is generally owing to the presence of ammonia, hence I regard this condition as an ordinary precursor of white decay. Even in the absence of test papers the approach of this state may be recognized by a tenacious or ropy (not soapy) state of the fluids of the mouth.' Professor Spalding, in a paper read three years ago before this Society, called attention to the fact that this condition existed in mouths where the most rapid decay was found. I have made many observations in this direction, and can agree with him.

"On page 411, Dr. Watt says: 'Nitric acid formed by the oxidation of ammonia within the mouth, is, of course, taken up by combination, atom by atom, as fast as formed; hence, we need not search for free nitric acid in the buccal fluids in order to explain a variety of caries, having this acid as its exciting cause; and even if we could so find it, we would find it corroding the surfaces of the teeth, rather than making carious cavities. But though we do not find nitric acid, we may readily find nitrates.' It is possible for the lungs to give off ammonia in cases of uræmia; but find it in no other condition of the system, except in the decomposition of the nitrogenous substances in the mouth—like gases given off from decomposed food lodged between the teeth. In Ginelin's 'Hand-Book of Chemistry' I find the following: 'Azotized organic matters exposed to the air, in contact with salifiable bases and water, yield salts, nitric acid,—the base may even be ammonia. The predisposing affinity of the base for nitric acid causes the nitrogen, at the moment when it is set free by the decomposition of the organic matter, and before it has assumed the gaseous form in its nascent state, to unite with the oxygen of the air and form nitric acid.'" (We fondly hope the allusion to the "nascent state" found in the quotation, will not hurt the feelings of our friend in the *N. E. Journal*. We would burn the pen and blast the pencil that would write anything to make him feel badly.)

But Dr. Talbot goes on to say: "Now, the ammonia is the base, and the predisposing affinity for the nitric acid would cause a union of the two thus: $\text{NH}_3 + \text{HNO}_3 = \text{NH}_4 \text{NO}_3$ — (ammonia plus nitric acid equals nitrate of ammonia). The ammonia having a greater affinity for the acid than the tooth substance, which is neutral."

Dr. Talbot agrees with Dr. Spalding; and we do too, and said so soon after the appearance of his paper. Dr. S. simply and clearly describes a condition strongly tending to light colored decay; and let the agent be what it may that is the *immediate* cause of any case of caries, it is never found floating around in the buccal fluids. It gets in its work after the manner of the nitrogen as described above by Ginelin, that is, in its *nascent state*. And of course nitrate of ammonia will be one of the nitrates formed, as we have elsewhere stated. And it is questionable chemistry to call tooth substance neutral, when it is well recognized that subsalts, such as bone-phosphate, often act the part of bases. And as all the nitrates are soluble, it follows that the nitric acid, if present, will act on all the substances with which it can combine, even if it does seem to have a stronger affinity for one than for the others.

Liebig and other standard authorities have told us that in the presence of free oxygen ammonia is *always* oxidized into nitric acid and water; and Liebig's opinion of the disposing circumstance is the strong affinity between nitric acid and water, the results of the oxidation. If we get a fragment of lean meat, or other nitrogenous food between the teeth and allow it to remain there, as nine-tenths of our population, and nearly all our dentists, do, unless the laws of the universe are changed, it will putrefy, and if it does, ammonia will be one of the results, and as oxygen is always present, this will be oxidized, and an atom or more of nitric acid will be formed, and in contact with the teeth. However much of it may combine with ammonia, some of it must combine with tooth substance. After the enamel has been removed, the piece of food is not necessary to keep up the process. The organic matter of the dentine answers quite as well, and another supply of ammonia is formed, to be oxidized, as before, into nitric acid, which exposes more organic matter, and thus the cavity gets deeper and deeper.

When Dr. T. becomes as noted in chemical science as he is in operative dentistry and oral surgery, he will not think of one base being able to take all the acid, unless it alone forms an insoluble compound with the acid.

But we are glad he has stirred us up; for having failed to be understood, hitherto, it becomes us to try to make "crooked places straight, and rough places plain," that none need stumble in this path of science.

But we must notice his criticisms of our views of black decay, or this article will remain unfinished.

In the same paper, one we read before the Indiana State Dental Society, he finds the following, and quotes it for the benefit of his hearers, and the whole profession: "As regards black decay, Dr. Watt says: 'I have as little doubt that sulphuric acid is the exciting cause, as I have of anything else in dental science. This acid is formed in the mouth by the oxidation of the sulphuretted hydrogen, the results of the oxidation being sulphuric acid and water. In this way it acts on a cork, carbonizing it by taking its oxygen and hydrogen, to form water, and leaving the carbon in a state of charcoal. It carbonizes the organic portions of dentine forming animal charcoal, giving the distinctive color to black decay.' Sulphuretted hydrogen is formed, as, is the ammonia, by the decomposition of food in and around the teeth, thus: $\text{H}_2\text{S} + \text{O}_4 = \text{H}_2\text{SO}_4$; but does it attack the teeth and produce black decay? In the two bottles which I pass around, the one containing undiluted sulphuric acid has discolored the cork; while the one containing the solution of water with twenty-five per cent. of the acid is so great that it burns the tongue and yet does not discolor. How would it be possible to endure a solution strong enough to produce discoloration of the teeth? The saliva consists of 99.5 parts of water, and the H_2SO_4 has such an affinity for water that it would unite and become so diluted as to produce no effect? In order to affect the tooth substance, it is necessary to confine the full strength of the acid to a limited locality, instead of its being all over the mouth, as would be the case if acids were produced in the manner described."

Let it be carefully borne in mind that, if the chemical theory of caries has any foundation in fact, whatever agent is active in producing the decay, *acts in its full strength*. The undiluted sulphuric acid exhibited by Dr. Talbot was probably the acid of commerce, the acid being in combination with an equivalent of water, while that which we suppose is the immediate cause of black decay is nascent, and therefore the acid without any dilution with water or anything else. Perhaps it was Dr. Kempton who asked how long it was going to take the opponents of the chemical theory to understand that the exciting cause of caries is always in the nascent state. We do not pretend to give the exact words of the question, but such was its substance, and we now repeat the question.

And let it be understood that the advocates of the chemical theory neither deny nor ignore the presence of micro-organisms in most cases, but claim that they take second rank, and are not essential to the production of caries.

CHEMISTRY (?)

At the late meeting of the Illinois State Dental Society, Dr. William H. Taggart demonstrated the presence of arsenic in a solution that had been obtained from the smaller, or apical portion of a pulp to which the poison had been applied for the purpose of destroying it. It was claimed and admitted that this experiment demonstrated the fact that arsenious acid may be absorbed by pulp tissue, and that it does not simply remain at the point of application. There would have been no need to demonstrate this fact had it not been for Prof. Flagg's frog, nor even then had we obtained, at the proper time, the true history of that frog, as given by the now lamented Buckingham, at the Highland House meeting of the American Dental Association, in Cincinnati.

But on page 154 of the *Transactions*, Dr. Talbot is represented as saying, after having admitted that Dr. T. had demonstrated that arsenic may be absorbed by the pulp: "It is a fact that arsenic taken into the stomach, or applied to a tissue affects it only by its presence, and the tissue is affected only where it is applied by over stimulation. It can only be absorbed when in a liquid state, and when the circulation of the pulp is normal."

Now, our heading modestly asks if the above is chemistry. Since when has it been recognized that arsenic can not permeate a tissue? It is not worth while to insist on the technical definition of absorption as a physiological term; for if by capillary attraction, or by chemical affinity, the arsenic becomes minutely diffused through the tissue, the case is practically the same as if absorbed. I well remember that my venerable and renowned chemical teacher, Dr. John Locke, when called on to make analyses in cases of suspected poisoning, was almost as careful to have portions of the liver as he was to have portions of the stomach; and yet he did not believe that it had been applied to the liver, and was affecting it only by over stimulation. It is astonishing how wide has been the influence of the erroneous

teaching of Prof. Flagg, in reference to his frog. But it was told, in open meeting, that the professors of chemistry, "in both our colleges," had sustained the erroneous position, after careful chemical analysis. In this state of affairs, it mattered but little what the rest of us knew on the subject, and still less what we said, for the supposition was honestly entertained that the three professors had agreed in their experiments and in their results; but when, in Cincinnati, in open meeting, Prof. Buckingham said that he had examined that frog, and found arsenic all through it, the prospect for the triumph of truth was greatly improved. And yet when Dr. Talbot sees the demonstration of the truth, he admits it, as he must, as far as a tooth pulp is concerned; but in reference to the stomach and other tissues, he stoutly adheres to the old error as taught by slandering science through a frog. It was our good fortune to see one of those frogs. A minute trace of arsenic had been applied to its thigh, and it was embalmed as nicely as if it had been a friend of the Pharaohs. We wanted no stronger proof that the tissues were permeated throughout by the poison.

A small chip of wood tied to a frog's thigh would affect its tissues, as really and as much as would arsenic, if it acts "only where it is applied, by over stimulation."

In reference to the absorption of arsenic, Pereira says: "It is, indeed, true that the quantity of arsenic which has been detected in the body after death is, as Dr. Christison remarks, 'almost inappreciably small;' but it is probable that the quantity is much larger than chemists have yet been able to recognize; and it is not at all unlikely that the arsenious acid may enter into new combinations while within the dead body, and in this way become diffused, probably in a gaseous state."

Though the quantity absorbed into the body may be small, yet if any at all is there, the proof of absorption is as strong as if greater quantities were found. And both Christison and Pereira were able to detect the presence of arsenic. Dr. Taggart's experiment, detecting arsenic at the apical end of the pulp, proves the same thing referred to by the authors just quoted, that is, that arsenic is absorbed. We stated at Indianapolis, that we had often found arsenic in the pulp, at a distance from the point of application, and a member gave it as his opinion that we had failed to exclude the point of application.

If we did not state then—we do not recollect now—we will mention the fact that before the removal of the pulp, we sawed off a portion of the root of the tooth, and tested only the part next to the apex.

But, lest the wiseacres again remind us that absorption is a physiological process, and that it always implies life in the tissue, or, as Dr. Talbot has it, the normal state, while the arsenic must be in a liquid condition to be absorbed, let the reader closely study the statement quoted above, in reference to the drug entering into new combinations within the dead body.

That arsenic, in some way, continues to advance into dead tissue, we have demonstrated by taking a piece of muscle from an ox. A piece a half inch long was laid on a fragment of clean glass. A very minute quantity of arsenic was applied to one end of the flesh, leaving no surplus or residue. It was kept in the dark, in a cool room, and, from time to time, slices were cut off from the distal end and tested. Several trials were made before the arsenic was found, but in due time it permeated the entire piece of muscle. This experiment was made and repeated in 1856, while we were preparing our essay on TOPICAL REMEDIES, which was read at Hope Chapel, New York, before the American Dental Convention. We do not recollect how long it took the arsenic to reach the other end from which it was applied. These experiments were carefully recorded; but the record was lost in our fire joke of 1866.

We dislike to give so much space to this; but so many of the dental profession have been led into error by the frog story and its repetitions, that we are likely to become the laughing stock of the medical profession. We sincerely hope to live long enough to see this erroneous position abandoned.

Of the fact that arsenic is absorbed, or, at least, that it permeates tissues to considerable distances beyond the points of its application, the proof is abundant and easily found. Lassaigne detected it in the pleura of a horse; and the Report of the French Commissioners, in the *Journ. de Pharm.*, Vol. XXVII., p. 415, says, "it has been detected in the liver and urine of dogs poisoned by it."

When it is claimed that arsenic "applied to a tissue affects it only by its presence," we are reminded of a scene just now observable from our window—some lively mechanics are building

a house; a man not interested in it, sits on a block, and watches the new work, day after day. He "acts only by his presence," and probably accomplishes as much as do chemical agents that act in the same way.

If Dr. Talbot were not influential, his false teaching would not do so much harm.

THERAPEUTIC PROPERTIES OF TIN.

For many years we have believed that tin, as a material for filling teeth, does not receive the attention to which it is entitled. At several meetings of societies lately, an argument has been used in favor of this metal, that it exerts a medicinal or therapeutic action. This has been used as an argument in favor of employing it by itself, as well as in combination with gold. And our opinion on the subject has been referred to by several of our brethren, some of them understanding, but many more misunderstanding it.

Now bear in mind that tin, as a metal, is therapeutically inert. This is probably true of other metals as well, including mercury and arsenicum. If this is true, and we are to get any therapeutic action from tin, of course we must get it from its combination with some other element or compound. Pure tin is not readily acted on by ordinary chemical agents. When it is used in filling teeth, it is not likely to be corroded; yet, if not corroded, no therapeutic influence can be gained from it. An interesting question then is, if it is to be corroded in the mouth, by what agent or agents? Probably oxygen, chlorine, sulphur, or cyanogen. The cyanide and the sulphide of tin are supposed to be nearly inert; the oxide is not very active; but the chloride is a most excellent antiseptic. It will be gratifying to some to know that it is a good germ killer; while it is very satisfactory to us to know that its direct chemical action on proteine, or albuminoid compounds, is highly antiseptic. Its combinations with albumen, gelatine, and fibrine, do not readily putrefy.

So when we consider, in this connection, the fact that of all the substances found in the mouth, chlorine has the greatest affinity for tin, and that, therefore, the chloride is more likely to be formed than any other compound, we think the origin of the

opinion, that tin exerts a desirable therapeutic influence, is not hard to trace.

But is there any ground of belief that gold and tin rolled together possess any advantage, therapeutically, over tin by itself? Let us try to think clearly.

If a piece of zinc is placed in dilute sulphuric acid, it soon becomes corroded. Now, if a piece of copper is placed in a solution of exactly the same strength, it becomes corroded. Then, if the zinc and copper are both placed in the same solution, and in contact with each other, both will be corroded, as before, but the corrosive action on the zinc will be increased, while it will be lessened on the copper. If for the copper, gold or platinum is substituted, the zinc will be still more rapidly acted on. It follows, then, that sulphate of zinc is formed more rapidly by using the two metals; and if we apply the principle here involved to the case in hand, we can understand that tin, in contact with gold, and immersed in the buccal fluids, is more likely to be chemically acted on, and the action is likely to be more energetic than if the gold were not present.

We are aware that this writing seems almost offensively minute; and the principles here laid down are known to every tyro in galvanism; but we are aware, as well, that there has been in the profession such a lack of clear thought on this subject, that it is necessary to either let it go misunderstood or to discuss it as if teaching an a-b-c class.

We have witnessed college professors flounder and plunge, as if drowning in a quagmire, when trying to talk on this subject; and at a late dental meeting somewhere it came up, and the eminent men present were not a whit in advance of the tyros, if the report of the proceedings indicate anything. One would claim that tin exerts a desirable therapeutic effect; and others would say they did not believe in the therapeutic powers of filling materials, as all they could accomplish depended on their ability to exclude foreign matter. All the time it was evident that not one had thought of how tin may act indirectly.

PROFESSOR COWHEIM has died of gout in combination with kidney trouble at the early age of forty-six. Was he the first to demonstrate the passage of the white corpuscles through the walls of the blood-vessels in inflammation?

YOUR FATHERS!—WHERE ARE THEY?

OUR acquaintance with Dr. Todd dates from May, 1854, and we had not been in his office ten minutes till we felt as if well acquainted, if not at home. Dr. T. was a genial, cordial man, strong in his likes, and perhaps strong in his dislikes. He was a picture of healthy, vigorous, manly strength. Even to the last time we saw him he was tall and straight, with bright eyes, and open countenance. Though younger than he, it was our expectation to reach "that good land" before him, but human calculations count for nothing. He is gone, and we are here. His bereaved family have our sincere sympathy. Peace—rest!

The following is taken from a Columbus paper, sent us by a mutual friend. It gives some interesting incidents of his eventful career:

DR. HIRAM TODD.

His Death after a Long and Honorable Career.

The death of Dr. Hiram Todd, which occurred at his residence, No. 23 Nineteenth street, last night, removes from our midst another of our oldest and most esteemed citizens. Dr. Todd stood in the front rank in his profession of dentistry, and has always occupied a prominent place in every circle in which he moved. His mind was a strong one, and he may be termed an original thinker. During all his life he was engaged in working out something new, and has invented a number of appliances used by the dental profession. His death is one that falls with a crushing blow upon his immediate family and is a great loss to his neighbors and friends.

Hiram Todd was born in Plymouth, Litchfield county, Conn., August 5th, 1808. At an early age he gave evidence of being of an ingenious turn of mind, and when but a young man he went to New York city and engaged with a watch and clock maker. At the same time, he took up the study of dentistry for himself, and in 1838 opened an office in the great metropolis. The following year his old employer had occasion to come west and put up a clock in Detroit and one for the old Trinity Church, on Broad street, in this city. Knowing the skill of Mr. Todd, he asked him to accompany him on this trip and help place the clocks in position. After the work had been done the two started

back for New York, but the trip was a long one in those days, and at Reynoldsburg, N. Y., Dr. Todd stopped, and, as he had brought his dental outfit with him, he opened an office there, but remained only a short time, when he retraced his way to Columbus, and resolved to make this his home. His success was great, and the doctor has often remarked that his practice grew rapidly enough to satisfy the most ambitious of men.

On January 1, 1851, Dr. Todd was married to Miss Carrie E. Wright, of this city, who still survives him. The result of this union was three children, all of whom are living. They are Dr. Will H. Todd, a prominent member of his father's profession, Mrs. Will Stimson and Miss Florence Todd.

For the past seven years Dr. Todd has suffered with paralysis, and for the past six weeks has been confined closely to his room. His death was not unexpected, as his advanced age rendered his constitution quite feeble. He died last evening at 9 o'clock. The funeral services will take place to-morrow at 3 P.M., from the residence, Rev. George Lincoln, of St. Paul's church, officiating.

PROFESSIONAL PIONEERING.

As it has fallen to our lot to address an Association of Pioneers to-morrow, it is perhaps not strange that our pen inclines to pioneer incidents, even though we are trying to write for a profession that we regard as out of the woods.

Jacob and Phebe had united their destinies and "gone west to grow up with the country." Phebe was watching Jacob as he prepared the fuel for the morning fire. The odor of the broiling venison in their cabin attracted a big black bear, and as it approached the woodpile Jacob dropped the axe, rushed into the cabin and bounded up the ladder, where he could sit safely on the joists. Phebe, less active, seized the axe, and resisted the attack of bruin with pioneer energy. From his safe perch Jacob shouted, "Give it to him, Phebe! Hit him between the eyes!! Break his back—lay on!!!" etc. And as some woodchoppers, hearing his shouts, came to learn the cause of the excitement, he dropped from his lofty seat and shouted "Victory!" And if he had been the editor of a political weekly he would probably have hoisted "a rampant rooster;" but as it was, he simply said, "See

what a big bear *me* and Phebe killed." Having told her where to hit, he felt that he had done the business. Jacob is now editing an independent periodical, and we hope he will go on with his bear killing; for we are all glad when a bear is killed.

But the moral of this story is in the application of it; or words to that effect. And it is right funny for a journalist, who has scarcely begun his career, to claim that a special instance in professional progress, the legitimate and almost necessary result of steps taken and principles set forth and accepted before he was professionally born, and a position at which we have all been aiming, is the fruit of his own herculean effort. By all means give him a rampant rooster.

Said Thomas H. Benton: "While friends deserted, and foes derided, solitary and alone, *I* put this ball in motion."

That was regarded as egotistical at the time; but this isn't.

DUBIOUS, OR DUBIOUSLY EXPRESSED.

ON page 309 of the *New England Journal* for September, in an extract of the President's address at the late meeting of the American Dental Association, the speaker is represented as saying: "This Association has the right to demand that all schools should require the attendance of more than one course of lectures." Now, how did this Association acquire authority over the colleges? It did not create them; for a number of them antedate its existence. We have never heard of the colleges or schools joining in a voluntary submission to the Association. We presume the worthy president meant and probably said, that the Association has the right and ought to require this as a condition of representation in the Association. All societies have the inherent right to define the terms of their own membership, and in this way the American Dental Association can do something, and probably much, to elevate the standard of professional education. It was probably in 1867 that much time was wasted in the meeting by some prominent members maintaining that the Association must receive delegates sent, regardless of the character of the delegates, or the bodies delegating them. Then at another time the editor of this JOURNAL said all that he could in favor of the Association's power to exclude immoral delegates, or those dele-

gated by disreputable societies or institutions. We do not believe the president intended to set forth the idea that the Association "has the right to demand" on any other principle than is referred to above.

We rejoice in the high stand the Association has always maintained in reference to the matter of professional culture. We may notice again some of the suggestions made by this address, if time and strength permit. We much regret our inability to take active part in the Association; but we are proud that we aided to organize, and that we have enjoyed its honors.

POST GRADUATE WORK.

WE do not insert the following as an advertisement, nor to give influence to one institution over another. The JOURNAL tries, but sometimes fails, to set forth all new suggestions tending to advance or elevate the cause of professional education. What would it not have done for us old fellows if we had been blessed with such opportunities? *Go in*, young men, and you will find that you will thus be enabled to *go on*. Of course all can not take advantage of these arrangements, but we hope all will who at all can.

OUTLINE OF POST GRADUATE WORK IN THE DENTAL COLLEGE OF THE UNIVERSITY OF MICHIGAN.

The object of this provision is a higher attainment in details of principles and practice than is possible in the usual college course, as now arranged.

Resident graduates are expected to remain in the college at least three months, and as much longer as they may desire.

They will be expected to furnish, in the main, the materials and apparatus required for their work.

Only the annual fee will be required of graduates of the University, which is, for residents of Michigan, \$25. Non-residents, \$35.

The especial line of study, investigation and work, may be chosen by the students, aided by the suggestions and advice of Faculty.

Those entering for this work shall be graduates of this col-

lege, or of any other college having an equal standard of requirements for graduation. This may be determined by examination.

Subjects.

The following are presented for study, investigation and work:

1. Comparative anatomy of the teeth—general, and minute or microscopic.
2. Investigation upon decay of the teeth—in the light of the recent theories upon the subject.
3. Pathological work, especially upon inflammation, tumors and neuralgia, treatment of diseased gums, treatment of exposed pulps.
4. Investigation upon action of the various therapeutic agents used in dental practice, and tests for the purity of each.
5. The various methods of inserting artificial crowns on natural roots.
6. Working the metals, refining, alloying, testing, changing to various forms; gold, platinum, silver, aluminum, tin, zinc, copper, etc., etc.

Other subjects will be taken up as may be required.

PROFESSOR HASKELL'S ARTICLES.

ONE of these was prepared for the September number, but was unavoidably crowded out. Hence it sees the light with its companion; and we can scarcely think of anything more practical in our previous periodical literature. It is Goldsmith, perhaps, that says "I have heard a blacksmith discourse most eloquently when the welding of iron was the subject; and evidently because he knew what he was talking about." There is no difficulty in understanding Prof. H.'s remarks, even if he does use plaster instead of hydrated calcium sulphate. We would be glad to have an item from his pen in each number, especially as these are so well adapted to the wants of the young and progressive members of our profession. Perhaps we will not offensively violate privacy by stating that he has told us that "These articles are not written for the 'old fogies' who can't be moved out of the beaten track of plates swedged upon zinc dies, and fitted to

the mouth with pliers, who still adhere to air chambers, and so on, but for the younger men who are anxious to progress."

We need hardly bespeak for the articles a careful reading; for what he writes is read.

HELP IN DISTRESS.

THOUGH seldom able to attend and thus enjoy the meetings of the American Dental Association, we feel deeply interested in its welfare and prosperity. We wish everything to run smoothly. We dislike jarring and discord. They hurt our feelings; "and a man's feelings are the tenderest part of him."

Off at this distance, we may see what is the matter better than if we were in the midst of the confusion incident to a busy meeting, and possibly better than even our more talented brethren able to be and always at the meetings. Believing this, we have elected ourselves supreme dictator for a single purpose, and when it is accomplished, we shall promptly resign.

There was a lack of universal satisfaction with the opening services of the Association at the late meeting. This is exceedingly sad; and, therefore, it shall not occur again. In order to prevent it, by the recognized authority of our dictatorship, we now and hereby appoint, inaugurate, ordain and install one of the editors of the *New England Journal of Dentistry* as PROFESSOR OF "PIETASTERY," and Chaplain of the Association; and now, that this is done, we resign our dictatorship, thus leaving no power to annul the appointment, nor any authority to which the newly created officer can resign. The appointment must, therefore, stand, and this trouble is all over, thank (?).

CENTRAL ILLINOIS DENTAL SOCIETY.

THE Secretary of this Society, Dr. C. R. Taylor, of Streator, Ill., informs us that his notice of the time of meeting, in the September JOURNAL, is not correct, as the case now stands. The reader will, therefore, please ignore that number, in as far as this society is concerned. The meeting is to be held at the place designated, on the 14th, 15th, and 16th of October. We are

sorry to have the JOURNAL misinform anyone; but it must recognize and conform to official changes. Let there be a full meeting of this good society the 14th, 15th and 16th inst.

Correspondence.

"I charge you that this epistle be read."

ETHICS.

BY W. S. H.

CODES of Ethics in the several professions are formulated on the assumption of a fundamental and dominant sense of the righteousness of right doing. The prevalence of such common sense is demonstrably due to the teaching and example of One who first declared the practical brotherhood of His disciples; and hence actual ethics proceeds on the presumption of the equality of professional brethren. The great Teacher said, "Let your light so shine before men that they, beholding your good works, may glorify your Father which is in heaven." We love Him who first loved us, and taught us that, loving Him, we should love the brethren also; being therefore aflame with divine love, we shall do good works, and thus make it manifest that we are children of our Father which is in heaven.

At present, as in the past, false teachers would have men think that ethical teaching has no foundation in fact, but is merely a superstition, when not directly traceable to the cunning impositions of crafty men. It is therefore pertinent that the attention of the brethren of our own dental profession should be renewedly directed to the foundations of our ethical relations, as laid in the consensus of Christian civilization; and no firmer basis of knowledge is possible to man than such certainty of fact as is afforded by the increasing experimental verification of the practical principles of right conduct, given to us by our elder brother, the Lord Jesus Christ.

We do not dogmatize in thus affirming the working worth of firm faith in the divine Demonstrator of principles in practice.

We simply and briefly consider the generic essentials of applied ethics, as actually evident; and not open to question by writers or speakers of shallow or perverted minds, either indisposed to, or incapable of right reason.

Societies.

"Wherewith one may edify another."

The following report is a document that will be wanted for reference, and therefore we insert it in full for the readers of the JOURNAL. If we had obtained it a few days earlier, we could have put it into the September number, but perhaps it will do as well here. It is important for the colleges to harmonize, and we are much pleased to see this evidence of harmony. The cause of dental education will be advanced by this action.

ED. JOURNAL.

MEETING OF COLLEGE FACULTIES

REPORTED BY E. G. BETTY, D.D.S.

A NUMBER of gentlemen representing the majority of the dental colleges in the country met together at the Sturtevant House, in New York City, at 10 o'clock A. M., Monday, August 4th, 1884. In pursuance of the object of the meeting, Dr. Foster, of Baltimore, in order to get to business, nominated Prof. C. N. Pierce, of the Pennsylvania College, as temporary chairman. Dr. Foster was nominated for temporary secretary, but withdrew in favor of Dr. H. A. Smith, of the Ohio College. The names of the colleges represented were then called as follows:

Baltimore, represented by Profs. Winder and Foster; University of Michigan, Prof. Taft; University of Pennsylvania, Prof. Truman; Philadelphia College, Prof. Garrettson; Ohio College, Prof. H. A. Smith; Boston, Profs. Blodgett and Follett; Iowa, Prof. A. O. Hunt; Pennsylvania College, Profs. Henry Leffmann and C. N. Pierce; New York, Profs. Abbott and Littig; California University Dental Department, by letter; Kansas City, by letter.

The Chair appointed as a Committee on Organization, Drs. Truman, Winder, and Taft. A recess of half an hour was taken to give the committee time to make their report. At the end of that time Dr. Taft read the report, which is as follows:

CONSTITUTION.

Name.

SECTION I. This body shall be called the National Association of Dental Faculties.

Objects.

SEC. II. The objects of this association shall be to promote the interests of dental education—securing more uniform methods, and elevating the standard.

Officers.

SEC. III. The officers shall consist of a President, a Vice-President, Secretary, and Treasurer, who shall be elected by ballot and shall hold office till their successors are elected.

Quorum.

SEC. IV. Two-thirds of the colleges belonging to this association shall be necessary to constitute a quorum.

SEC. V. Any contemplated change involving the interest of the dental schools represented in this association shall require one year's notice before final action is taken.

SEC. VI. Three members shall be elected, who, with the officers, shall constitute an Executive Committee, who shall have power to designate the time and place of the meetings, make preparation for the same and pass upon all candidates.

Memberships.

SEC. VII. Any reputable dental college may be represented in this body upon submitting to the Executive Committee satisfactory credentials, signing the constitution, conforming to the rules and regulations of this body, and paying such assessments as may be made.

Dr. Winder moved that the report be read again in sections, so that each could be passed upon by the meeting. Carried. The 1st, 2nd and 3rd sections were adopted in their order as read.

After some discussion upon the manner in which the colleges were to vote, it was settled that each one vote as a unit with this

understanding, the 4th section was also adopted. When the 5th section was read there was some discussion on the point that before any important change be made involving the interests of the colleges that one year's notice be given and that the words "dental schools represented in this body" be substituted. The section was adopted as amended. In the 6th section, two members to be elected, was changed to *three* members to be elected by ballot, and the section adopted as amended. When the 7th section came up Dr. Harlan offered a verbal resolution to insert a clause providing for a membership fee. Dr. Taft moved to amend this by substituting an annual assessment to defray such expenses as might be incurred. Carried. It was then suggested that a committee on membership be appointed to pass upon candidates for admission to the association. Dr. Foster said that the officers and members composing the Executive Committee were appointed to act in that capacity, as it was impractical to multiply committees. Carried. The report, as a whole, was then adopted, and the constitution signed by the following colleges:

Baltimore college of Dental Surgery, M. W. Foster, R. B. Winder, Dean; Pennsylvania College of Dental Surgery, C. N. Pierce, Henry Leffmann; Philadelphia Dental College, J. E. Garrettson; New York College of Dentistry, Frank Abbott, J. Bond Littig; Boston Dental College, J. A. Follett, Dean, Albert N. Blodgett; Dental College of the University of Michigan, J. Taft; University of Iowa, Dental Department, A. O. Hunt; Chicago College of Dental Surgery, A. W. Harlan, F. H. Gardiner; Dental Department of the University of Pennsylvania, James Truman; Ohio College of Dental Surgery, H. A. Smith.

The gentleman from Harvard, Dr. Fillebrown, could not sign the constitution, as he had no delegated authority to act for his college, but thought that the forming of the association was a good thing and it met with his hearty approval. On motion of Prof. Taft it was decided that during the time between the annual meetings any college desiring admission can become a member by applying to the Executive Committee, presenting satisfactory credentials and conforming to the rules, etc., as provided in the constitution. A motion was then carried to go into the election of permanent officers, the following gentlemen being elected:

President, Prof. C. N. Pierce; Vice-President, Prof. R. B.

Winder ; Secretary, Prof. H. A. Smith ; Treasurer, Prof. A. W. Harlan.

The three members elected to serve on the Executive Committee were Profs. Abbott, Truman and Taft.

Dr. Winder offered a resolution that after the session of 1884-85, that the colleges announce that five years' practice will no longer be accepted as an equivalent for one course of lectures. Dr. Taft said that was somewhat indefinite, as it was necessary to state exactly how many years, if any, *would* be required. Dr. Winder said that his resolution was one of inquiry only, in order to see what the members thought about it. Dr. Truman moved as a substitute for Dr. Winder's resolution that two full years' attendance be required at college ; this was carried with enthusiasm. Dr. Smith made a motion to the effect that a medical graduate be required to attend but one course in a dental college, provided that he passed an examination satisfactory to the faculty. Dr. Abbott would amend this by requiring that such graduate of medicine be required to spend one full year in a college infirmary instead of but one *course*, so that he would have at least this length of time to qualify himself for practice, the year to include the course of lectures in the college. Dr. Foster thought that the student's ability should determine the length of time he was to spend at college. Dr. Abbott thought that there should be a minimum of time required. Dr. Taft remarked that the student of average ability is to be the basis of consideration, and not the extremes to which reference has been made. He has had most trouble with the medical men because they imagine their attainments are superior, and are not therefore inclined to study and work so hard. The best way undoubtedly is to require time sufficient to teach thoroughly. Dr. Smith said that the resolution was indefinite, and that "In College Infirmary" be substituted. Dr. Abbott accepted this, and his amendment was carried. Dr. Smith's resolution then, as amended, was unanimously carried. Dr. Abbott offered a resolution recognizing one course of medicine as equivalent to one years' office pupilage, but requiring of such student the attendance upon two courses of dental lectures. This was carried. Dr. Harlan offered a resolution to be added : "Provided that a candidate for graduation shall have attended two regular courses of lectures in separate years." Carried unanimously. Dr. Taft then offered the following ; "*Resolved*, That

we recommend that three years study of dentistry be required for graduation from a dental college." Dr. Follett moved to amend by substituting "required" instead of recommend; no second. The resolution carried. Dr. Taft then moved that a committee of three be appointed by the Chair to consider curriculum in the schools; the Chair then appointed Drs. Taft, Truman and Winder. Adjourned.

AFTERNOON SESSION.

Upon the meeting being called to order, Dr. Winder said that he thought it best for the Association to meet biennially. Dr. Taft expressed the opinion that it would be more advisable to meet again a year hence, as there would undoubtedly be much of the business of this meeting requiring modification and perfecting; Dr. Taft's amendment was carried. He also moved that an assessment of \$2.00 per member be collected from each college to meet the expenses incurred. Carried. Bills amounting to \$15.25 were ordered paid. Dr. Truman then moved a reconsideration of the action of the Association requiring medical graduation as an equivalent for one year's course in a dental college. Dr. Winder and Dr. Taft both spoke against this, and the question being put, the motion was defeated. Dr. Garrettson received instruction from his college in writing, which he put in the form of a written resolution, to this effect: *Resolved*, That the colleges of this Association receive into the senior class only such juniors as hold certificates of having passed a satisfactory examination in the studies of junior year; this certificate to be a pledge to any college to which they may apply that a previous term has been properly spent in the institution whence they come.

After considerable discussion on this resolution, it was referred to the Committee on Curriculum to be brought up again at Saratoga, August 5th.

Adjourned.

SARATOGA, August 5th.

The meeting was called to order by President Pierce; the minutes of the previous session were read and approved. Dr. Taft read a letter from the Dean of the Dental Department of the University of California. Dr. Abbott said it was impossible for California to be represented by a letter and have the power to vote as it is necessary for the colleges to be present in the persons of their authorized representatives and sign the constitution per-

sonally, as a letter or proxy could not be construed to constitute membership. The Chairman stated that the constitution made provision for colleges to become members, but not by proxy. Dr. Truman—Can't a college vote by proxy after it has become a member of the Association? The Chair said that no provision had been made for that, and that the point would require further legislation to determine it. Dr. Taft moved that Dr. Truman act as proxy for Philadelphia. The President said this could be done by common consent, and as no one offered any objection, the motion prevailed. Dr. Smith said that it was his impression that Dr. Garrettson's resolution was laid on the table at the last session. Dr. Gardiner said that it was laid on the table before the adjournment of the morning session, but that it was brought up in the afternoon and referred to the Committee on Curriculum. The Chair ruled that it could be brought up as new business. A motion to do this was carried, and Dr. Abbott moved that it again be referred to the committee to further consider it. Carried. Dr. Taft moved its adoption, Dr. Truman favored its going back to the committee. Dr. Taft, the Chairman of the Committee on Curriculum, made his report :

REPORT ON CURRICULUM.

Preliminary Examination.

Your committee recommend that a preliminary examination be required for entrance to our dental colleges. Such requirements shall include a good English education.

In case of any student failing to pass a satisfactory preliminary examination the other colleges of this Association shall be informed of the fact.

Dr. Abbott moved that it be accepted. Carried. Dr. Abbott said that as he understood it, the report contemplated action a year hence, and in view of that he moved that the report be adopted. Carried. Dr. Truman said he thought that part relating to a graded course was a recommendation, and could not see how the schools could change their order to conform with the provisions of the report, and had doubts about the practicability of the change. Dr. Darby said that we could recommend the adoption to the schools, and at all events it amounted only to a transposition of studies, and the thing is not impossible. Dr. Foster said that something was misunderstood, it was not intended

to prohibit operative dentistry during the first year. He also thought it best that the deans be notified so that students would be prevented from going from one college to another, as an examination at one institution was enough to determine whether the student was fit or not. Dr. Hunt said that usually it is the custom in institutions to accept literary degrees without question. Dr. Gardiner asked if the preliminary examination was to be in writing. The President said it was not specifically stated. Dr. Gardiner—It ought to be. Dr. Truman thought that such an examination should be a test of general information. Dr. Taft suggested an amendment so as to read “a reasonable knowledge of numbers, geography, and history.” Dr. Foster said that when the subject was up before, opinion was so divided that we stopped at plain “English language.” As Dr. Taft remarked, a candidate, though generally intelligent, might be deficient in some particular branches and yet be fit; the examining boards are the best judges of the capabilities of the candidates appearing before them. Dr. Abbott thought that the examination should be in writing. A simple statement of an examination was sufficient without specifying upon what subjects the examination would be made. Dr. Taft said that all he insisted upon was that the candidate possess such general knowledge as is usually taught in the schools, and certainly we have a right to expect that he shall have some training upon which to base his study of dentistry. Dr. Foster—Don’t an ordinary English education comprise the studies enumerated? Dr. Taft—What I mean is, an ordinary English education in the sense the term is generally understood. Dr. Foster moved an amendment to read “ordinary English education.” Dr. Follett said that we might, and ought to, advance a little on what is called an ordinary English education. The candidate certainly ought to know numbers, geography, and history, but I would limit the latter term, as it might be construed to mean the entire history of the world from pre-historic times down to the present day. Dr. Taft—That point is modified in the report by the word “reasonable.” Dr. Follett said that if a student did not pass a satisfactory examination, would the other colleges accept the decision? Is it justice to the student if another college refuse him? Dr. Smith said that the student might come back afterwards and be prepared to make his examination satisfactorily. It is best not to be unjust to the student as

he might be acceptable to one college and not to another. Dr. Follett said that the clause should be so arranged as to *mean* something. If he studies for a year and qualifies himself he is entitled to try the examination again. Dr. Foster—The object of the report is that if a student applies to a college and is found incompetent that the other deans be notified. Any dean's notification to this effect is ample evidence that the applicant was not competent at that time, and as he could not enter that college then, neither could he enter another immediately afterward. Dr. Follett expressed the hope that the examination would be made in writing in part at least. Dr. Darby said that it was possible for the student to go from one school to another very rapidly and represent that he had never been examined, and this makes it possible for the colleges to fall into error if the deans are not notified at once of such student having failed to show himself capable. Dr. Foster said that examinations may or may not be severe, and should one college refuse him and another receive him into its classes, the latter shoulders all the discredit for having accepted an incompetent, while the other would assume great virtue and honor for the action it had taken. Dr. Abbott said that certain days could be specified upon which examinations might be held in order that all anticipated trouble might be avoided. Dr. Truman thought there were practical difficulties in the way of this course, as the dean has all that he can do to receive students from the middle of September to the same time in the following month, without adding to his many duties by putting applicants through preliminary examinations. This would delay matters very materially, and he did not see what disposition could be made of those who had passed in the meanwhile. Dr. Smith—I think we are attempting entirely too much at the present meeting of this association, as we are not ready to say just what we want to do. It is much the wiser course to go slowly, and with care, than to adopt faulty methods that will undoubtedly have to be changed. Dr. Gardiner mentioned a college in which the examination papers of the preliminary examination were kept on file just the same as those of the final examination. Dr. Follett said that if his college refused an applicant, would the other colleges do the same, for if they would not, what would be the use of any notifications? Dr. Taft said that it was unlikely that more than two or three such cases would

occur in a year's time. At any rate, when the uniform action of the colleges becomes known, as it undoubtedly will in a short time, the candidates will prepare themselves to pass the examination; six or eight hours is amply sufficient to examine half a hundred students, and have the examination in writing at that. Dr. Follett—The report reads "shall" report. Dr. Taft—That was changed to read "may." Dr. H. A. Smith said that as the Chair had made no remarks on the subject, he would like to hear from him. Dr. Pierce said that he had been engaged in examining students for medical beneficiaries. The application of the candidate is always in his own hand writing. They may also send credentials from the teachers in the schools they attended. The pastor, also, usually gives a certificate as to the student's general character. These examinations number about ten or twelve per annum. It seems to me that it is impossible either to specify questions or appoint days on which the preliminary examination is to be held. The examination for admission may in many cases be conducted by correspondence, thus saving considerable time. Dr. Smith—I think that literary graduates need no examination. Dr. Taft—The diplomas of a reputable institution are always recognized. The report may be changed to include this point, but it was tacitly understood. Dr. H. A. Smith moved to amend by inserting the clause. Carried by common consent. The first part of the report as amended was carried unanimously. Dr. Taft then read the second section of this report. Dr. Truman moved to adjourn and think over it till to-morrow. Dr. Foster did not think it of sufficient importance for that. Dr. Smith said he did not wish to be considered presumptuous but "why not strike specification and insert graded course."

Adjourned to meet August 6th, 4:30 P. M.

SARATOGA, Aug. 6th, 1884.

Dr. Pierce called the meeting to order, and the reading of the minutes being dispensed with, Dr. Abbott offered the following resolution:

Resolved, That we agree to adopt a graded course of instruction and an intermediate examination, which course of instruction and examination shall be conducted as the faculties of the different colleges represented in this Association may deem proper.

It being understood that it was a substitute for that portion

relating to the graded course, Dr. Truman moved its adoption : carried unanimously. Dr. Hunt—If certificates are to be issued is there to be any change in the methods of issuing tickets? Must the student not have a certificate as evidence of his examination?

Dr. Abbott moved that all students shall have a certificate from the school in which they were examined, which certificate shall be demanded by other colleges before admission. Dr. Hunt thought the Executive Committee should be instructed to prepare blank certificates to be filled up with those subjects upon which examination has been had, and be a plain statement of what the examination was. Dr. Darby—It is superfluous, as the certificate would always be demanded. Dr. Abbott—The matter should be referred to a committee to report upon next year. The resolution was carried unanimously. Dr. Taft made a further report from the Committee on Curriculum :

Curriculum.

We recommend that the following subjects and arrangements be adopted by the colleges of this Association, viz :

First Year.

Anatomy with Dissections, Physiology, Histology, Chemistry Didactic and Practical, Mechanical Dentistry.

Second Year.

Review of the Junior Year Studies, Pathology, Surgery, Materia Medica, Therapeutics, and Operative Dentistry.

Dr. Truman moved that "a review of junior year studies" be stricken out. Dr. Abbott moved the adoption of the report as a recommendation. Carried. Dr. Foster moved that a committee be appointed to confer with the National Association of State Examiners to let them know what has been done by this Association. Dr. Taft—This has been done, and I have no doubt that Association will recognize the action of this and discriminate accordingly.

Dr. Pierce said the committee ought to be furnished with official copies of the resolutions passed by this body. The resolution was carried, and the chair appointed Drs. Foster, Abbott, and Hunt. Dr. Truman moved that the Secretary prepare printed copies of them and send them to the schools represented; Dr. Hunt suggested that the official results also be added.

Carried unanimously. The Association then adjourned to meet a year from this time.

ASSOCIATION OF STATE BOARDS OF DENTAL EXAMINERS.

REPORTED BY DR. E. G. BETTY.

SARATOGA, Aug. 8th, 1884.

THE Association was called to order by President Taft. The States represented were: New Jersey by F. C. Barlow, Fred. A. Levy, C. W. Malony; Vermont by Jas. Lewis, G. H. Swift, S. B. Hodge; West Virginia by G. A. Wingerter; Maryland by E. P. Keech; Pennsylvania by C. N. Pierce, J. C. Green, E. T. Darby, and S. H. Guilford; Ohio by J. Taft and H. A. Smith; Illinois A. W. Harlan and Geo. A. Cushing; Georgia by G. W. McElhaney.

Dr. Taft said that a committee was appointed by the College Faculties Association to confer with this body. A motion was carried to invite them in. Dr. Abbott was the only member of that Association present. Dr. Abbott referred to the formation of the Association of College Faculties, as elsewhere reported in the JOURNAL. He then read the resolutions passed by that body. The action of the Supreme Court in Illinois gives this Board a great deal of power over the standing of the graduates of the colleges, and then a little harmonious work on the part of these two bodies may induce all colleges to join the Association, the result being an elevation of the standard. It was moved that the resolutions be accepted. Carried. A letter was read from M. H. Chappell, Secretary of the Indiana State Dental Association, of which the following is an extract:

"The Board of Examiners of Indiana have used their utmost endeavors to have the Indiana Dental College alter their *advertised* standard and to conform to the requirements of the National Board. Whether it was the admonitions from the Illinois Board or from the Indiana Board, we can say that the trustees have *positively decided* to conform, and they now appeal to the Indiana Board to ask of the National Board to remove any injunction that may appear against said college. Henceforth the Indiana Dental

College may join with the Indiana Board in the work of the National Board."

No action was taken on the letter further than to accept it and put it on file. Dues were then paid. Adjourned to 3:30 p. m. At this hour President Taft called the meeting to order, and Secretary Cushing read the minutes of the former session. Dr. G. W. McElhaney, of Georgia, requested his State put on the list with the others, as he was not present in the morning. Dr. Keech announced that the dental law in Maryland had just been passed, and mentioned two cases of men who had been practicing dentistry in part at the time the law was passed, one a mechanical dentist, the other simply an extractor and applier of leeches, and the Doctor wanted to hear from the members as to the method of treating such cases. An Auditing Committee, consisting of Drs. Pierce, McElhaney and Lewis, was appointed to audit bills and vouchers. Dr. Guilford offered a resolution to the effect that the proceedings of both meetings of this Association, together with the report of the Association of College Faculties, be published in pamphlet form and that a copy be sent to each college and State Board. The resolution was adopted. Dr. Cushing offered the following resolution: *Resolved*, That this Association instructs its members after June, 1885, to recognize as reputable no dental college that does not require, as a requisite for graduation, attendance upon two full regular courses of lectures and practical instruction, which courses shall be of not less than five months duration and shall be held in separate years, with practical instruction intervening between the courses. Such colleges must require a preliminary examination before admitting students to matriculation. Resolution carried unanimously. Dr. McElhaney offered this resolution: *Resolved*, That this Association recommends the dental colleges not to grant free scholarships to State societies through the recommendation of the Examining Boards or of State societies. On motion the resolution was adopted. Dr. Pierce offered this: *Resolved*, That this Association insists that no Board, hereafter organized and connected with this body, shall confer degrees or titles of any nature. Dr. Guilford moved to amend by rescinding resolution three on page seven of the published proceedings. Carried. Dr. Pierce again offered his resolution, which was carried. Prof. J. Taft was elected President unanimously; Dr. McElhaney was elected Vice-President; Dr.

Cushing was elected Secretary and Treasurer. The Association agreed to meet in New Orleans the last Tuesday in March, 1885.

Adjourned.

DENTISTS' BENEVOLENT ASSOCIATION.

THE first annual meeting of the above organization was held at Sweet Springs, Mo., July 10th, 1884, President Dr. C. H. Darby in the chair.

About twenty-five members were present.

The reports of the Secretary and Treasurer were received and approved.

The following officers were elected to serve during ensuing year:

PRESIDENT—Dr. C. H. Darby, St. Joseph, Mo.

VICE-PRESIDENTS—Dr. F. Swap, Booneville, Mo.; Dr. J. J. R. Patrick, Belleville, Ill.; Dr. W. H. Eames, St. Louis, Mo.; Dr. R. E. Nickles, Salina, Kan.; Dr. J. W. Reed, Butte City, Montana Territory; Mr. F. X. Combs, Chicago, Ill.

SECRETARY AND TREASURER—Dr. R. I. Pearson, Kansas City, Mo.

BOARD OF DIRECTORS—Dr. A. H. Thompson, Topeka, Kansas; Dr. J. A. Price, Weston, Mo.; Dr. J. M. Austin, St. Joseph, Mo.; Dr. Geo. H. Cushing, Chicago, Ill.; Dr. G. W. Tindall, Kansas City, Mo.; Dr. C. B. Hewitt, Kansas City, Mo.; Dr. J. D. Patterson, Kansas City, Mo.; Dr. H. S. Thompson, Kansas City, Mo.; Dr. A. C. Schell, Kansas City, Mo.; Dr. J. S. Letord, Kansas City, Mo.

This association is duly authorized, by charter from the State of Missouri, to carry out the objects of its organization. Composed exclusively of those identified with the dental profession, and having no salaries or other excessive expenses to meet, it offers to those eligible to its benefits a cheap and reliable means of providing for their families in case of death. For further information, address

R. I. PEARSON, *Secretary*,
2206 Troost Ave., Kansas City, Mo.

THE Fifteenth Annual Meeting of the Virginia State Dental Association will be held at the Atlantic Hotel, Norfolk, Virginia, Tuesday, October 14, 1884, and continue in session three days.

The North Carolina State Dental Association will meet with us by special invitation.

Arrangements have been made for clinics by a number of distinguished operators from different sections of the country; also for the largest display of dental chairs, instruments and appliances ever made in the State.

A cordial invitation is extended to all members of the profession to attend, with the assurance of hearty welcome.

J. HALL MORSE,

Corresponding Secretary.

Our Aftermath.

MODES OF PRESERVING SPECIMENS FOR MICROSCOPIC EXAMINATION.—Prof. Cornil while complaining that many valuable specimens have been ruined, which were sent to him for examination in the pathological laboratory, on account of a want of proper precautions for their preservation, gives some good rules to guard against these accidents. The reason why the specimens were spoiled is that sometimes they were already decomposed when put into a preservative fluid, and others were too large for the amount of preservative fluid. Valuable spinal cords have been sent twisted up in corkscrew fashion, in phials containing alcohol enough to simply harden the surface, while the interior softens and decomposes. For a given specimen the fluid which suits it best should be selected. It is often impossible to examine the most interesting parts of a specimen because a hardening agent has not been used sufficiently early. Sometimes a brain or cord came after having been for several days or weeks in a strong solution of chromic acid, and the surface was burnt while the interior was decomposed. Sometimes a tube is sent, supposed to contain a particular kind of bacteria, and collected without any precautions, naturally only the bacteria of putrefaction would be found. Often a big-bellied vessel is sent, with a narrow neck, through which the specimens had to be squeezed, and of course misshapen, in order to be inserted, and which had to be broken to extract the specimens.

1. A specimen is in its best condition when taken from the living body or as soon as possible after death, and placed in an appropriate liquid immediately. Fresh tissues taken just after an operation or during an autopsy present a cohesion which is rapidly lost when the blood and other fluids have left them, and the cadaveric decomposition has commenced. So it is necessary to place them at once in a preservative or hardening fluid, particularly if one wishes to study the modifications of the cells, or to search for pathogenic bacteria.

2. Specimens removed in surgical operations should be cut into fragments that are very small in proportion to the amount of liquid in which they are to be placed. The amount of the fluid should be twenty times as great as the size of the specimen to be put in it. If it be simply to determine the nature of a fleshy tumor, the razor or bistoury is used to detach from the centre and from one or two points on the periphery, two or three cubes of about one ccm. in size, washed in distilled water if bloody, and placed in alcohol of 80° to 90°, suspended in a vessel which holds about fifty grs. of alcohol, with a large mouth closed by a ground glass stopper or a metal cover.

Instead of suspending the specimens, they may lie upon a bed of tow at the bottom of the vessel. Cork stoppers, besides closing the vessel imperfectly, have the disadvantage of growing a mold on their inner face. If it is necessary to use them, dip the lower portions in paraffine and seal them with wax.

To study the indirect multiplication of cells in tumors or affections of the skin, after selecting a part which is supposed to be in active development, it is placed immediately in absolute alcohol or in a solution of chromic acid 2-1000. Ten minutes after removal would be too late. To separate the elements of a tumor, a fragment of about 2 cm. should be placed in a vessel of 30 gr., containing two parts of distilled water to one part of alcohol. at 90°. The fluid should be renewed in twenty-four hours, if the examination is not made.

To preserve all the blood contained in vessels or cavernous tissue, as an angioma, Muller's fluid should be used (20 grs. bichromate of potash, 10 grs. sulph. sod., to a litre of distilled water).

If the tumor is small, the whole is put in without opening it, or a louble, if it be too voluminous. The volume of the fluid should be twenty times that of the specimen. To study nerves taken from a tumor, a sarcoma or myxoma of the nerves, or in the amputation of a limb, etc., a thin shred of nerve about 1 to 3 centrimeters long, should be removed by the scissors, fixed at its two ends and placed in a groove on a small splinter of wood, a match for example, which is to be inserted in a glass tube containing a one per cent solution of osmic acid. The subcutaneous painful tumors which are supposed to contain nerves, are also put in the same solution of osmic acid, the fragments being small enough to permit the solution to penetrate into their interior, and should not be more than two millimetres thick and six or seven millimetres long. After remaining 24 hours in five times their volume of osmic acid, they are to be washed with distilled water and put in absolute alcohol.

To preserve the specimens for examination with the naked eye, a temperature of 32° to 36° F. will keep them for several days without change. Otherwise, a ten per cent solution of chloral preserves pretty well the appearance and color of the parts. The liquid should be renewed if it becomes muddy, and the specimen should be suspended in ten times its own volume of the solution.

Alcohol is the best preservative. To use it properly the specimen should be washed for twenty-four hours in a large vessel where a current is established from the bottom by rubber glass tubing, and then placed in alcohol, so as to be bathed by it at every portion, the dissected or isolated parts suspended

ed by threads from glass rods. Another way is to wash the specimen quickly, then place in half water, half alcohol for two or three days, and then put it into alcohol of 80° or 90°. The advantage of the alcohol is that it permits of an ulterior microscopic examination, which other liquids do not. But whatever means are employed, the specimen will lose its color.

3. To obtain the bacteria from a liquid, a very clean bistoury should be taken, which has been washed in alcohol and heated in a flame, on the point of which a drop of the liquid is taken up and spread upon a thin layer of glass, which has been washed with water and with alcohol and dried with care. This is covered with a similar piece of glass which has been treated in the same way, and the delicate layer of fluid dries quickly, and they are then wrapped in paper. They can be kept one or two days before being used. The blood obtained by pricking the finger after a careful washing with soap, and then with alcohol, can be prepared in the same way; but to preserve the red globules, the glass must be exposed for a quarter of an hour in a moist chamber to the vapors of osmic acid. As urine dries very slowly, owing to the hygrometricity of its salts, a very small quantity should be taken and dried over the lamp flame. The meatus must be washed with care, and the material taken during macturation. With women it is nearly always mixed with the secretion of the vulva and vagina.

It is useless to search for bacteria in summer twenty-four to thirty hours after death, but if the cadaver has remained at a temperature of 32° to 36° F. they can still be found at the end of thirty hours.

In looking for bacteria in tissue sections, they should be taken from the living body, as a small portion of the skin or subcutaneous adipose tissue detached from the border of an incision made in opening an abscess, or a minute section made with patient's consent, from a tubercle of lupus or leprosy, or in erysipelas, etc. These fragments of one or two millimetres thick by eight or ten long, are at once placed in a phial containing alcohol at 90° which is best for them, although it contracts them a little.

4. Precautions recommended for certain organs and tissues particularly.—Skin. As many of the cutaneous eruptions blanch out after death, so as to be no longer recognizable (spots of typhoid fever, erythemata, superficial papules, etc.) it is well to mark them before death with aniline or nitrate of silver. The parts so marked are to be taken as soon as possible and put in alcohol, Muller's fluid, or osmic acid.

Nervous system.—Bichromate of ammonia 2-4 per cent solution, sections to be made carefully. In tuberculous meningitis, two convolutions with the pia mater covering them undisturbed may be put in alcohol. Very minute fragments of the brain and cord may be put in osmic acid to study fatty degeneration.

The reagents mentioned are useful in preserving the various parts of the body in a simple manner. To preserve the retina, osmic acid should be injected as soon as possible by a fine (Pravaz) syringe, through the sclerotic into the vitreous humor; 24 hours after the globe is to be cut through and put in distilled water for an hour and then put into alcohol. This can be done after the enucleation of a diseased eye; or it can be put entire into Muller's fluid, taking care first to prick the sclerotic in several places to permit the preservative fluids to penetrate into the interior.—*Jour. Am. Med. Association.*

SPONGES.—Editors could a tale unfold of the way some people get their advertising done for nothing, and lawyers could tell of legal advice given by them without receiving the slightest acknowledgment, pecuniary or otherwise. Doctors, also, are the victims of these questioners. Men, old in the tricks of these friendly sponges, manage to evade them, but the young editor, lawyer, or doctor, though he knows he is being defrauded, has not the courage to cut short the confidential chat, by saying that he hopes to make his living by receiving pay for that which his friend expects to get for the asking. No one expects a carpenter, blacksmith, jeweller, or any one who plies a trade, to do the smallest job for nothing, and yet those who willingly pay for such labor, seem to think they have done nothing of which to be ashamed, if they "manage" to get legal or medical advice without having to pay for it. Strange to say these sponges are oftenest found among those who could well afford to pay for what they want; and stranger still is the fact, that they would resent with the greatest indignation, a refusal to oblige them or an intimation that they were taking advantage of another's politeness, and thus getting for nothing that which the giver has a right to expect something more substantial for than mere thanks.—*St. Louis Magazine.*

ECZEMA is not a dental disease, but it attacks dentists and totally unfits them for operating for the time, unless they can each rent a scratcher. If the prescription below can do what is claimed for it, it is exceedingly valuable.

This is one of the troublesome skin diseases. The intolerable itching, and the sticky character of the matter coming from the diseased parts, call for immediate relief, if possible. Whatever may be the constitutional vice upon which eczema depends, the solution of iodide of lime is the remedy.

R. Iodide of lime, $\mathfrak{5j}$; boiling water, Oij. M. When cool filter, and it is ready for use. S. One teaspoonful every three hours during the day.

As a local application, for immediate relief and permanent cure, R. Vaseline, $\mathfrak{5jv}$; oil of tar, $\mathfrak{3ss}$. M. S. Apply twice daily. No speculation about this, and our readers may rely upon good results.

BRAIN WORK.—The London *Lancet* says: "Brain tension is not a proof of strength, but of weakness. The knit brow, straining eyes and fixed attention of the student are not tokens of power, but of effort. The intellectual man, with a strong mind, does his brain-work easily. Tension is friction, and the moment the toil of a growing brain becomes laborious it should cease. We are unfortunately so accustomed to see brainwork done with an effort, that we associate effort with work, and regard tension as tolerable, if not natural. As a matter of fact no man should ever knit his brow as he is thinking, or in any way evince effort as he works. The best brain-work is done easily, with calm spirit and equable temper, and in jaunty mood. All else is the toil of a weak or ill developed brain, straining at a task too great."

As apparently authentic account is given of the birth of four living male children by a woman named Mrs. W. H. Pullman, who resides near Eureka, Mo. The mother had previously given birth to triplets.—*Med. and Surg. Reporter.*

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Contributions.

"A word fitly spoken is like apples of gold."—SOLOMON.

RESPIRATION.

BY GEO. WATT.

[Read before the Xenia Academy of Medicine.]

THIS subject is quite too wide in its range for a single meeting, or even for a single paper. Without much effort at system, therefore, I shall proceed to notice such points pertaining to it as strike my fancy as I write, using my memory, as I can, to call up the principles that have been taught me by text books, lectures and periodicals; in doing which it is not probable I shall advance a single original thought, while it must be evident to you that in pursuing this course I can not give credit even where credit is due. The order in which the thoughts are expressed, and the words used to express them are mine; while the thoughts themselves are gathered from the gardens of physiology, regardless of boundaries and proprietorship.

Two leading objects are gained by breathing; oxygen is carried into the blood, and oxidized matter is carried out of it. In ordinary physiological conversation, the latter seems to be almost ignored, or at least referred to as of less importance than the former.

In childhood's days it seemed so foolish to draw in a breath, and immediately blow it out again, that I endeavored to make an improvement on the process by trying to retain the breath till it had the time to do some good ; and in this, my first experiment, I became convinced that the process meant more than the mere inhalation of air.

Our atmosphere is a mixture of gases, nitrogen, oxygen, and carbonic acid, two of them elementary and one a compound. Other gases and vapors are commingled with it, but are not essential to its composition. And of these three, oxygen seems to be the most important. It is common to state that the nitrogen simply dilutes the oxygen ; but if it were possible to annihilate the nitrogen, the oxygen would continue to occupy exactly the same space that it now fills. The expansion of the chest to a given extent, by the muscles of respiration, would take in the same quantity of oxygen now inhaled ; but the muscles of respiration would work under a pressure of about three pounds to the inch, instead of fifteen as with the present atmosphere.

In respiration, oxygen is conveyed into the air cells of the lungs, and reaches the blood by passing through the mucous membrane that lines them ; and carbonic acid escapes from the blood into the air cells, and is carried out with the expiration. This exchange of gases takes place in accordance with law of gaseous diffusion. The terms endosmose and exosmose ought to be restricted to the transfusion of liquids through membranes ; at any rate, the law of gaseous diffusion is all that is needed to explain the transfer. When a liquid is charged with carbonic acid, and pressure is made on it by a piston covered by a moist animal membrane, the acid is pressed out, and escapes through the membrane in its gaseous form. So when the venous blood reaches the lungs on its return, it is charged with the acid, and when the chest is expanded the atmosphere rushes in, pressing the lining membrane against the charged blood, and as in the illustrative case, the acid escapes in its gaseous condition.

The air cells are not at all emptied by the act of expiration. On the other hand, they are still as full as at the completion of inspiration. Ordinarily the air inhaled has a lower temperature than the lungs, and it, therefore, expands as it receives heat, from the lungs, and the distention thus caused facilitates the entrance into the blood. The oxygen is thus constantly passing into the

blood, while the carbonic acid mainly passes out during the inspiration. In all this, let me say again, there is simply obedience to the law of gaseous diffusion.

On reaching the lungs the blood has a livid color; but as soon as the red corpuscles, have become resupplied with oxygen, the color is florid. Iron is a constituent of the red corpuscles, and it is found in no other tissue of the body. In view of the very peculiar behavior of iron and oxygen with each other, this is well worthy of special notice.

Twenty-eight parts by weight of iron unite with eight parts of oxygen, and form the protoxide of iron, in the old nomenclature. This is a basic oxide, and acids unite with it to form various salts of iron. Carbonic acid readily combines with it, to form carbonate of iron; but this is not a permanent salt, for in the presence of free oxygen, as in the atmosphere, the iron is oxidized a half a degree higher, and the sesquioxide of iron is formed. In this twenty-eight parts of iron are in combination with twelve of oxygen. Carbonic acid can not combine with this oxide, and is therefore set free from the carbonate of iron, simply by the action of oxygen.

Let us now consider the changes in the iron and the blood, in one round of the vital fluid. For convenience, start at the right ventricle of the heart and assume, for the present, that the blood here is livid, called venous blood, and that the iron here is in the condition of the protoxide and united with carbonic acid. When the ventricle contracts the blood is driven to the lungs, where it meets with fresh oxygen, which changes the protoxide to the sesquioxide of iron, and sets the carbonic acid free, as it has no affinity for the sesquioxide. If set free it is gaseous, and it escapes into the air cells, being aided by the pressure caused by the inspiration. The blood next returns to the heart, carrying the sesquioxide, instead of the carbonate of iron, and it is driven through the arterial system, to reach the capillary vessels. In passing around, and mainly in the capillaries, I think, the red corpuscles give out oxygen, reducing the sesquioxide to the protoxide, and carbonic acid, formed by the oxidation of carbon, during the progress, combines with it, changing the blood back to a livid hue, and, under the name of venous blood, it is carried through the veins to the right auricle, which by contraction drives it into the right ventricle, which we assumed as our starting point.

With these facts in mind, the change from arterial to venous blood, and back again, is not mysterious, nor hard to understand. As no metal but iron behaves in like manner with oxygen, it follows that it is absolutely necessary to the function of respiration. And as certainly as the blood circulates, so certainly will these changes occur, the changes being absolutely and completely beyond the control of the will. And while this explains the action of oxygen in the blood, it does not take into consideration all the oxygen passing into the blood by respiration. This oxygen that combines with and lets go the iron alternately, is probably that which is concerned in developing the forces of organic life. Its absolute freedom from the influence of the will is an indication in this direction.

The red corpuscles carry more oxygen than is necessary to change the iron in the blood from a protoxide to a sesquioxide, and this seems to be stored in the corpuscle ready for use. For convenience this might be called the oxygen of reserve; and that the corpuscles can carry it thus, is one of the mysteries of science. The phosphorized fat in the red corpuscles is of a highly combustible character, as its composition indicates, yet ordinarily it remains unconsumed, and even undisturbed by the presence of the oxygen. The oxygen thus deposited must be in a passive state. What is meant by this may be better understood by a familiar illustration with another element.

Iron, as is well known, rapidly decomposes nitric acid. The action is so energetic that the liquid is agitated. But if the iron is placed in contact with platinum, and the two metals are introduced into the acid in such way that the platinum first touches it, the iron remains in the acid without decomposing it, or being corroded, and this even after the platinum has been withdrawn. In the one case the iron is active, in the other, passive. In like manner oxygen has its active and passive conditions, in the former being called ozone.

This that I have called the oxygen of reserve is the probable source of voluntary life force, as the oxygen is rendered active by the will, which is only another illustration of the influence of mind over matter.

The prominent constituents of our bodies are carbon, oxygen, hydrogen, and nitrogen. The oxygen that serves to build up tissues is derived from the food, and obeys the ordinary laws of

assimilation. That introduced by respiration serves a purpose totally different. In the one case the oxygen builds; in the other it destroys; and on the principle of correlation, the chemical force manifested in this contest becomes vital force. Heat is generated by the oxidation of carbon, hydrogen, etc., to the same extent as if they were oxidized outside of the body.

Vital force is manifested in organic and animal life. The former is wholly independent of the will power, while voluntary thought and motion are manifestations of animal life. It is probable that the oxygen associated with iron in the circulating fluid originates the vital force of organic life, while the forces of animal life come from the action of the oxygen of reserve. Of course it is mysterious that the oxygen of reserve is rendered active by will power, at the proper time and place, so that it acts on the proper tissues for setting forth the manifestations of animal life; but it is only another illustration of the fact that man is made in the image of God, who said, "Let there be, and there was," nor is it more mysterious than that oxygen can be rendered active by an electric spark.

But we must not forget that the phenomena of respiration and its results are not constant and uniform. With every breath, oxygen is taken into the blood, and carbonic acid passes out of it; but the quantities of both vary greatly with the circumstances. The variations are not coincident; for it is not when the most oxygen is taken in that the most carbonic acid is given out. The quantities of oxygen used by a man at work and by a man idle are not widely different; but the workingman gives off much greater quantities of oxidized matter, in the shape of carbonic acid and water, than the idle one.

A very interesting fact has been demonstrated by carefully conducted experiments, and that is that a man asleep takes in oxygen far more rapidly than one awake, even though the latter is engaged in brisk, vigorous exercise; but the sleeper gives off very much less carbonic acid and water. When awake we appropriate oxygen sufficient to carry on the organic functions, in the way of changing the iron from a protoxide to a sesquioxide; but in sleep we lay in a supply of passive oxygen to furnish force for voluntary efforts of mind and body. And from this is seen the great importance of sleep.

But it seems that sleep is not the only thing necessary to the

laying in and storing away, in the red corpuscles, the oxygen of reserve. It is claimed that the assimilation of nitrogenous food must be going on at the same time. At all events, a free indulgence in carbonaceous food, in the evening, renders the night's sleep unsatisfactory. When it has been demonstrated that in such sleep we appropriate less oxygen than when nitrogenous foods have been used, we can understand the reasonableness of lean meats, oysters, fowls, etc., being used for supper. If the requisite supply of passive oxygen fails to be laid in during sleep, for want of nitrogenous materials in the food, the restlessness of one unrefreshed by slumber will be manifested; and this may explain what we sometimes see in those who use only vegetable diet, who fail to sleep in the hours ordinarily devoted to rest, while they take short sleeps in business hours, and even in the midst of conversation. This is more noticeable in those who have but recently adopted the vegetarian habits, as the experienced ones have instinctively adopted such vegetables as are rich in nitrogen.

If it is true then that our voluntary efforts are sustained by oxygen laid in during previous hours of sleep, it follows that the quick breathing, resulting from rapid or violent exercise, is not for the purpose of getting more oxygen into the blood, but for carrying carbonic acid out of it.

In normal breathing the inspiration occupies more time than the expiration. A sudden ejection seems to prevent a carrying back of a portion of the carbonic acid, and this shows why, in spasmodic asthma, bronchial catarrh, or in any condition that retards the expiration, the patient feels as if he were inhaling an atmosphere partially charged with carbonic acid. It is very important to bear this in mind in the administration of anæsthetics. There should be the utmost freedom of expiration; and, by attending to this, there is less of delirium and discomfort.

Bearing in mind the principles laid down here, we can readily understand the deleterious effects of breathing at least some of the poisonous gases that are sometimes commingled with the atmosphere.

When hydrosulphuric acid, sometimes called sulphuretted hydrogen, is breathed, the red corpuscles are darkened, and are not restored to their natural florid hue by oxygen, as is the case when they are darkened by carbonic acid. When this gas and an oxide of iron are in contact, double decomposition takes place,

forming a sulphide of iron and water. Iron in combination with sulphur, in the corpuscles, cannot carry oxygen, and of course cannot deliver it in the capillaries. By this combination the corpuscles lose their special function, which cannot be restored, and they die.

Nitric oxide, sometimes called binoxide of nitrogen, is a very poisonous gas. It cannot be inhaled, except when diluted; but, when mixed with atmospheric air, it may be breathed in injurious quantities. This gas has a very strong affinity for oxygen, so strong that when it escapes in bubbles into the atmosphere it is almost immediately changed into nitrous acid, by taking two equivalents of oxygen from the air. It is used in the laboratory to deoxidize metals, and when brought into contact with the red corpuscles, it can scarcely fail to take the oxygen from them, deoxidizing the iron, as well as combining with the oxygen of reserve. If able only to reduce the sesquioxide of iron to the protoxide, the blood is no longer arterial, and is therefore unable to support the functions of organic life. And still further, by taking oxygen, it becomes an acid, nitrous or nitric, and is therefore able to form a salt with the protoxide of iron, rendering the red corpuscle totally unfit for discharging its duties in supporting the functions of organic life.

But the poisonous compound does not await its arrival in the blood to undergo increased oxidation. In the presence of free oxygen, as in atmospheric air, it is almost instantly changed into nitrous acid, as already said, and in contact with watery vapor it is about as rapidly changed from nitrous to nitric acid. These changes will rapidly take place in the air cells, if they have not occurred before they are reached. The corrosive action of the acid on the lining membrane of the cells unfits it for the ready transfusion of gases through it, and in this way the function of respiration is sometimes impaired for several days in succession by inhaling a minute quantity of this poison, commingled with nitrous oxide, when used for anæsthetic purposes. This is somewhat discussed in an article in WATT'S CHEMICAL ESSAYS; but it would take us off our line of thought to follow it out here.

Ammonia is another gaseous compound often breathed, but in general it acts injuriously on the function of respiration. Like other gases, it obeys the law of gaseous diffusion, and hence, if diluted with atmospheric air, so that it may be inhaled, it

passes through the membrane into the blood. Its tendency when there is to dissolve the corpuscles, and the result is great prostration, and a peculiar pallor, not easily described, but readily recognized after having been seen. When taken into the blood by respiration, it interferes with the reception of oxygen by the corpuscles, as it dilutes the air inhaled to the extent of its presence. But the greatest danger in breathing ammonia has been alluded to when speaking of its oxidation, or rather the oxidation of its elements. Liebig says these are always oxidized when in contact with free oxygen, the result being nitric acid and water; and the fact that these have a very strong affinity for each other, he calls a disposing circumstance.

In December, 1880, the writer and wife had a practical experiment with the result of the oxidation of this gas. The mercury was below zero, and a main water pipe, that brought water into the hotel, had bursted. About 10 P. M. the water was shut off for repairs, and this opened the traps of some of the lower water closets. We retired soon after, with a transom from the hall open. At midnight we awakened, neither able to speak, and barely able to open a window and touch the bell signal. Our air passages were clogged with great quantities of the toughest mucus I ever saw. Our sufferings were intense,, and notwithstanding the extreme cold, we had the windows opened, and the transom closed, till the air in the room was changed. Our teeth were corroded, and the acid fumes were quite discernible. No other guests had been so much exposed, yet there were many complaints of hoarseness and sore throats at the breakfast table. The above is the statement I wrote out the next morning after the accident.

Defective respiration may do harm in various ways. When not enough of oxygen is appropriated to sesquioxidize the iron, the carbonic acid will not be duly given off; and if the iron is not changed, that is, if it remains as a carbonate of the protoxide, and passes to the left side of the heart, blood partly venous will circulate in the arteries, and to this extent will the corpuscles be unable to carry the oxygen to supply force to the organic functions; and in this abnormal state they seem to be unfit and unable to receive and carry the oxygen of reserve to supply force for voluntary efforts. An indescribable feeling of "goneness" will be complained of by the victim.

We must bear in mind, too, that while carbonic acid is the sole result of the complete oxidation of carbon, and water the only result of the oxidation of hydrogen, if the supply of oxygen falls short of the normal demand, other compounds may result from the defective oxidation of the carbon. In or out of the body partial oxidation of carbon gives carbonic *oxide*, instead of carbonic acid. It is well known that this is a deadly gas when inspired, but some may not know why it is so deadly. Its leading chemical characteristic is a strong affinity for oxygen. If brought in contact with the red corpuscles, even in the arteries, it will take oxygen from the iron, converting the sesquioxide into a protoxide, and as by this addition of oxygen it is changed to carbonic acid, it unites with the protoxide, and in this process venous blood is formed in the arteries. The iron having given its half equivalent of oxygen to the carbonic oxide, cannot give any more out, as it passes through the capillaries, to support the vital functions. Or instead of taking oxygen from the iron in the corpuscle, or even when it is doing so, it may take its wanted supply from the oxygen of reserve, and to this extent will be lessened the vital force devoted to voluntary efforts of mind or body. The extreme prostration experienced in badly ventilated rooms, or when respiration is seriously defective from any cause, is readily understood in connection with this theory.

It was the intention to discuss some of the leading causes of defective respiration, but the paper has become too long. We cannot give a full reference to the authorities consulted. Having read up a little on the subject, we used memory and judgment, taking some thoughts from Liebig, and some from our own former articles.

ARTIFICIAL CROWNS.

BY DR. J. E. LOW, CHICAGO, ILL.

[Read before the Iowa State Dental Society, May 6, 1884.]

I SEE by the programme of the Ohio State Dental Society, that I am expected to read a paper on Crowns. For several reasons I very much regret this. The subject is one of so much importance to every conscientious dentist who has at heart the

welfare of his patients, and it covers such an endless field for thought, that I do not feel that I can do the subject justice in the short space of time I have had, with so much to do and such a multiplicity of things to think of. I must, therefore, ask the indulgence of this society.

In every man's existence certain conditions are necessary to perpetuate this existence. There are other conditions necessary for his welfare and happiness. The old saying is, "it was the last straw that broke the camel's back." Now, then, I think when a man loses his teeth, that a large share of his happiness in this world is gone; that he cannot live in its fulness. It seems to me like the last straw. The burdens of life are so great that to add the loss of the teeth would be like adding the straw to the camel's back, only I would add broken hearts. I believe to become a dentist, great responsibilities are contracted; that we must not only be able to cure diseases of the mouth, but restore decayed and broken teeth to usefulness. It is no credit to a dentist to extract teeth that could and should be made useful. If we can feel, after discharging a patient, that we have rendered him valuable services, that we have done him good, then we may justly feel that we have not missed our calling. If any one in the practice of dentistry, I care not though he may have all the titles of honor attached to his name, fails to see that his patient would be better off with natural teeth than with false ones, and continues to direct his energies in destroying that which he can never replace, he is not worthy of the name, and the less we have the better off the community at large will be.

Crowns, the subject of my discourse, is one of the most effectual means of restoring these broken teeth and roots to their original usefulness and beauty, the knowledge of which no dentist can afford to be without. For many years various devices and means have been employed in restoring roots to usefulness. I cannot, in detail, speak of all the various methods. I will confine myself principally to the Buttner Crown, which I am called upon to demonstrate before this society.

The Buttner crown does away with many of the objectionable features of the so-called Richmond crown, which has been recognized by the profession generally as the best before the Buttner was known, and when properly adjusted and good judgment is used there is no doubt about this. The fact that there have

been many failures made by parties using this crown, does not detract from the principle or its merits. One of the principal reasons for so many failures can justly be attributed to driving the bands too far under the gum. In many instances this has been followed by inflammation and loosening of the root, which is a natural consequence. This objection is entirely obviated in the Buttner crown, as no pressure or rough edges are left to irritate or cause inflammatory action. A trephining instrument being used, the tooth is turned perfectly round to a size indicated by the size of the root, and when completed the root is entirely covered and protected, so much so that they can be made to hold without cement, and Buttner tells me that all the first crowns he made were put on without cement, and they still remain, doing good service. It was found to be more practical to change instruments and use a small amount of cement on account of the necessity of removing caps several times to fit and arrange the tooth. The Buttner crown has the good qualities of all crowns, and many qualities others have not. They are perfect in appearance, show no gold, and still stronger than any other crown. I have been using them in connection with bridge-work quite extensively where scattered roots were present and a porcelain front was desirable.

To more fully illustrate the perfection of this crown, I have here a specimen in connection with bridge-work, which is so rapidly becoming popular, a class of work, when indicated, all other methods sink into insignificance in comparison. Here is a cut (No. 1) which represents a vacancy of seven teeth; the three



No. 1.

roots as seen have been turned or cut ready to attach Buttner crowns; one gold crown is used on the left molar. The work is in my mouth, and will be on exhibition during this society's ses-

sion. I mention bridge-work in connection with crowns simply because the two are inseparable in many instances. Take this case before us. The crowns of the teeth are gone. If we use the crown alone we have restored to usefulness only three teeth, and four teeth are still missing. If we supply these teeth with crowns only, a plate would have to be used to supply the remaining vacancy, and these crowns can as well carry seven teeth as three, and avoid covering the roof of the mouth, a desirable consideration. Then, again, we have, when this case is completed, as seen by cuts, a system of crown-work from root to root.

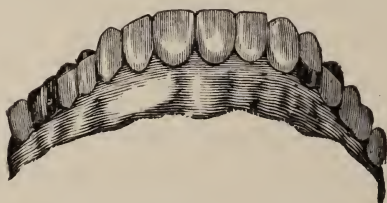


No. 2.



No. 3.

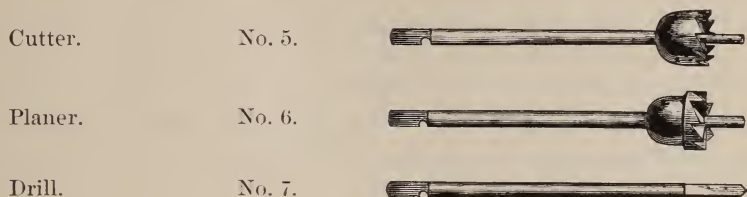
No. 2 illustrates the case ready for adjustment, and No. 4 after completion. No. 3 shows the crown of central incisor cut through the center, ready for adjustment.



No. 4.

The manner of adjusting the Buttner crown is quite simple. Should we desire to crown a tooth, we first ascertain the condition of the nerve cavity. If we find the nerve destroyed, the next important point is to know the condition of the root; is it a healthy root, or do we find it diseased? If diseased, one of two things must be done to insure success, either the root must be treated or a tube must be used instead of the solid pin in the center. The root can then be treated through the tube opening, cured and closed up. Cuts 5, 6, 7 represent the instruments, of which there may be any size or number made, eight being the number put on the market. The drill is first used to drill a hole the depth necessary for the instrument to be used in cutting the root. The planer is then used to level the root,

after having ground or cut with excising forceps the tooth the length desired, and the shorter the easier the tooth is arranged.



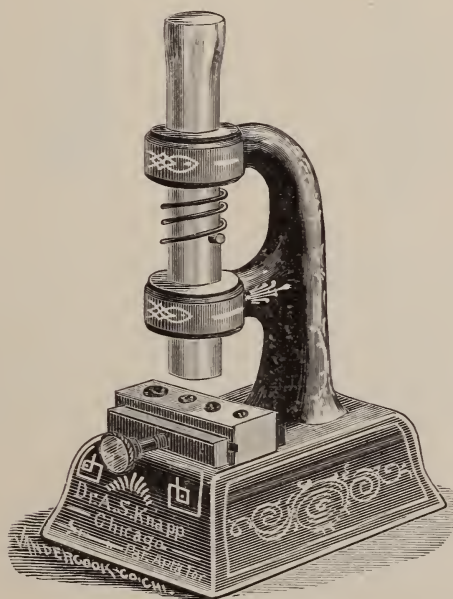
It is advisable to cut the root short, and use a small instrument so as not to lacerate the gum. We should make all such operations as painless as possible. After planing the root down level, the cutter is used. While using these instruments a stream of water must be kept running on the instrument and root, by the assistant. After cutting the root, the cap which is kept on hand, made of platinum, fitting all sizes of instruments, is slipped on the root. The tooth is then selected and fitted. Should the pin in the cap, which extends through, be in the way of arranging the tooth, cut it nearly off, and with pliers turn to one edge of the cap, and solder fast. As it is needed to remove the cap in arranging the tooth, should the cap prove to be so prominent that the tooth could not be brought into the desired position, take the engine, and with stone cut the lower portion of the cap and tooth sufficient to set the tooth in proper position. The part of the tooth and cap can be cut without injury, then cover with thin platinum the entire length of the tooth, and over this thin platinum using as a backing say about No. 28 platinum; then bend down the pins to hold all firm in position. After having been ground; fitted and backed, it is placed in position and held with a preparation of wax, gutta-percha and rosin, or any other substance of sufficient strength. Then with a pair of forceps grasp the pin and gently remove the tooth and cap together, and insert in plaster and sand or asbestos. Remove wax, solder and finish, and the tooth is ready to be attached. Should we wish to supply the vacancies in connection with crowns, as shown in cuts No. 1 and 2, we would place these caps in their respective positions on the roots, take a deep impression of the teeth and mouth, and a correct articulation in wax, from which the case can be completed. Any other crown can be

used in a like manner, should the operator desire. I know of no crown that can be made as quick or as cheap, or that is as strong and perfect as the Buttner. There are a few improvements that will make this crown perfect, and bring it into use for all crowns used in the mouth. I can see no reason why they will not be used for all molar teeth, in the near future. The fact that the neck of the tooth is made round, is no objection, as a nicely shaped gold crown can be soldered to the cap, making a perfect, strong and useful tooth.

An instrument like the one used by Buttner for putting on teeth, where the nerve still remains alive, with the socket twice the depth, having a center pin attached to a spring to hold the instrument in position, can be used successfully on all teeth in mouth that are desirable to crown, and which are not too far decayed, in which case the gold crown takes the preference in most cases. It has been but a few years since the opposition to gold crowns was extensive, and now but few dentists do without them, and no dentist without their use can expect to approximately compete in preserving the natural teeth and natural conditions with one that uses them. The making and setting of a gold crown has been made very easy and simple, so that every dentist can, with a little perseverance, become an expert. Measure the root with a strip of block tin about the width you desire the length of the crown; after placing around the root and pressing gently close to the gums with pliers, draw the tin tightly around the tooth; remove the tin, cut where the plier marks indicate the size, cut the gold to this pattern, solder together and drive over the root. After having fitted properly, cut off sufficient to allow the tooth to articulate, and with wax take an articulation of the band and a few of the adjoining teeth; remove the wax and band, place the band in the wax and place in articulators; then these struck up caps, of various sizes, can be selected, the band cut down so as to allow the cusps to articulate properly; stick the cap to the band, remove band and cap. fill the band with plaster and sand, solder and finish, and you have perfect articulation and a satisfactory piece of work with a small amount of labor.

The little stamping machine, of which I have given a cut, gotten up by Dr. A. S. Knapp, in my office, is almost an indispensable article to any dentist doing crown, or bridge work, as in a

few moments any sized cap can be made ready for soldering to the fitted band, not only saving much time, but assuring an artistic and satisfactory piece of work. One thing more in regard to the Buttner crown: It has been said that it could not be used on badly decayed roots. I will here state how it can be used with perfect success, and with as little if not less labor than any other crown. Suppose we have the broken walls of a central or lateral incisor for an illustration, with a portion of the walls broken nearly or quite to the alveolar process. After pressing the gums back by the use of gutta-percha for a day or so, all decayed tooth substance is removed. A twist drill of sufficient size is used to drill out and enlarge the nerve cavity, having previously made all necessary under cuts, where the tooth substance was sufficiently strong. Then enlarge the nerve cavity a sufficient size to admit the adjustment of a large, strong platinum tube, with a screw cut on the end a shade larger than the drill



No. 6.

used. Place the tube in an instrument and turn into the root, and see that it is a perfect fit. Remove moisture, place a little cement on the screw, and turn into place. Beard that portion of

the tube below the screw. Fill around the tube and build down that portion of the tooth which is deficient, with amalgam. Being perfectly packed, the patient is discharged for the amalgam to harden. When the patient returns we have no center to drill. The planer is placed in the tube and the root planed level. Then proceed to set the crown as before described, and you have a strong and desirable crown when thoroughly done. I have been asked how I crowned long, bicuspid teeth, the root being oblong and the trephining instruments being round. The root is cut down the regular way, cutting the labial portion of the tooth so the cap will come to that side of the root; place the cap in position; take an impression of the root and cap; place the cap in the impression, and pour with plaster and sand, having previously varnished the impression, so they can be easily separated. Cover over the balance of the root with thin platinum as desired, and solder to the cap. We then place back on the root, then proceed



No. 8.



No. 9.

to set the tooth as described. Here we have in cut No. 8 the cap ready to arrange the tooth. No. 9 is the tooth ready for attachment. In this case we use the struck up gold crown cap, as before spoken of, on the grinding surface, with porcelain on labial side, as seen by dotted line on right side; the balance is gold. This makes it equally as serviceable as gold crown with porcelain front.

A VICTIM TAKEN TO TASK.

BY AN ALLEGED PERSECUTOR.

THE *Cincinnati Literary Club* was recently treated to, not only a feast of reason, but to a most sumptuous repast of allegories, as well.

The Essayist, upon that occasion, proved satisfactorily to himself, and doubtless to his hearers, that there is no hope of salvation for the dentist. The millennium not being at hand, and therefore all controversies not decided upon their merits, we must admit we do not expect our plainly-proven contradictions of our "Victim's" claims to be accepted by the world at large. Of the fifty-five millions of people of these United States, there are not twelve thousand dentists;—a decided majority against us. Nevertheless, it is becoming to take up these claims, each in turn, showing not only how fallacious they are, but also the great amount of generosity, patience, and other virtues, necessary to the make-up of a *Doctor of Dental Surgery*, all of which will prove as well, that he of all men, will be foremost among the elect to happiness hereafter.

He claims, first—that dentists are a product of modern civilization and that no mention is made of them in the bible. For the sake of argument we might say, and doubtless prove, that his mound builder's broken jaw was caused by a direct visitation of retributive providence—say a stroke of lightning—as a judgment upon him, for relating to his dentist what impossible things had been done to him by his previous co-operator, such as running a probe three or four inches long entirely into some particular tooth, for example. His own suggestion of the fate of Annanias, will allow this construction put upon the case. This not only explains the fracture, but also the presence of the piece of shell. No more beautiful illustration is needed to show the forgiveness of spirit demonstrated here by this dentist in particular, and, therefore, of the possession of the same by dentists in general. Again, this shows the practice of the golden rule by the dental profession; and, as all must know, there is no surer pass-word, at the gates of heaven.

Our "Victim" also says the bible mentions the doctor and the minister, the carpenter and the baker; and "ALMOST (our own italics) every business is mentioned, but we hear nothing of the dentist." Now, were *all* callings mentioned, as in a directory, and if we did not find, in the list, that of "dentist," we might readily conclude there was none such. But this is not the case. No mention being made that there *were no* doctors of dental surgery, in those days, we naturally conclude that there were. No doubt, then, as now, they were the personification of all the cardinal

virtues—the embodiment of all that was good, and true, and lovely; and, therefore, not to be classed with your doctors, carpenters and such! A careful examination of the records does not discover the fact of the good Samaritan's not being a dentist—we may, therefore, naturally assume that he was. Otherwise, how could he have been competent to bind up wounds? Surely he was no physician, for had such been the case, it would most certainly have been mentioned. Thus are our "victim's" first arguments disposed of.

His second claim brings tears to my eyes! With us, our most earnest hope is, that from this world, those who have not repented of their wicked ways, may go to another in which they are given a second chance to reform, and so another opportunity to reach heaven in the end. Think of the thousands (and our "Victim" is one of them) who go from friend to friend, from dentist to dentist, relating the most wonderful and impossible operations to which they have been subjected, whilst in the dental chair! The general, to draw it mildly, let us call them *inaccuracies*, with which our "Victim" deals, reach their acme here, when he speaks of "Cutting away a whole tooth to discover an *exposed* nerve!" Shades of Worcester! descend, we pray, upon this Literary Club, and teach them the meaning of the word "*exposed*." The charges of going without meals for days, is in fact, without any foundation. Those who are at all intimate with any member of the profession, will bear me out in that assertion. "Business before pleasure" is our motto, and, however we may love to do good—by filing teeth, or otherwise—whatsoever is being done upon the arrival of a meal hour, must be immediately stopped for the time being, that the inner man may be refreshed, and the strength to do good continue. The code requires all invitations to banquets, feasts, dinners and even cold lunches, to be accepted, and is rigidly enforced.

When a patient presents, whose brain descends to the sockets of the teeth and even into the roots thereof, to avoid disastrous results, it becomes the duty of the dentist to remove these portions of the same; for which purpose he uses the long thread-like probe, so feelingly alluded to. Whatever the pain during this operation may be, surely it must be amply compensated, by the pride a man must have in possessing such a brain! How far superior he is to the ordinary mortals surrounding him! And the

days of Annanias and the mound-builders having long since passed, he may feel complete security as far as his temporal welfare is concerned.

The laughing gas has developed a trait of character which is most beautiful to observe. It is—would you believe it—generosity! For in every case, “The patient has all the agony of the operation, without the power of thrashing the operator;” and yet, when that same patient returns to have another molar “surged,” he will willingly pay (or have *charged*) the additional fee and take the gas again. To do such patients justice, we must allow, that this cheerfully, and *needlessly* increasing the fee, is doubtless placed to their credit in that next world mentioned above. As for the charge of “killing the nerve,” that is absurd! No one need have a nerve killed, unless he does so of his own free will. If he so prefers, he can sit up with it, and nurse it, night after night! In this, our “Victim’s” second claim, I have clearly proven that his zeal allowed his imagination to be drawn upon; facts being wanting.

Thirdly: Our “Victim” takes exception to the instruments used by the profession. The claim which we make as to the general inaccuracy of his *facts*, might safely be rested upon this one computation. For, if a dentist with a “steel boiler plate pincher” can find *twelve* nerves, while he could have found but *one* under the old process, there is an *increase* of but eleven. He, therefore, *increases* his work but *eleven*, and not twelve-fold. (If it will be accepted in the friendly spirit in which it is made, let us suggest to the Cincinnati Literary Club, that their next essay be read from the “Scholars’ Companion,” to be followed by one upon “Elementary Arithmetic.”)

As for the “Wedge,” which is merely a small piece of wood, a man is certainly looking about for small things, to find fault with, to growl at that. Why, we do not mind wedges at all,—that is, inserting them.

The “file” may not be pleasant, we will admit. We frequently think so ourselves, as we *file away* another “Promise-to-pay-when-the-crop-is-made,” or words to that effect, when cash down was the contract. Therefore, the less our “Victim” says about that, the better. He’ll hurt our feelings. The great utility of the probe, has already been mentioned.

But of all delusive fancies, our “Victim” closes with the

most absurd. The idea of preventing a patient from *talking*, never yet entered the head of any dentist;—ye gods, I call upon you to hear me swear! The “tail of a rubber coat”—verily a whole rubber coat—“in troth we might go further,” and say, a whole rubber suit—hat, boots, and all—would prove of no avail! If ‘ever there comes a man who will devise a process whereby whole histories of tooth-ache, of grand-fathers’ and mothers’ teeth; of teeth of lists of friends, can be stopped, cut short, or in fact done anything with except(im) patiently listened to—he shall be hailed as a deliverer of the profession from a bondage heavier than that from which Moses brought his tribes!

In conclusion, we must say, we fear people in general have come to look upon exaggeration, prevarication, and even invention, as necessary to the recounting of their experiences in the dental chair, expecting from a kindly Providence immunity from this class of sin. Let us hope such is the case. Some of our friends are, in general, well-meaning, we know, and having given them the right hand of fellowship here on this world, ’twere hard to think of not meeting them again in another.

INFLAMMATION.

BY GALEN, XENIA, O.

THE readers of the JOURNAL will remember, by reference to No. 12, Vol. III., that we had arrived at *suppuration*, *sloughing*, *gangrene*, and *induration*, in the discussion of our subject. We now propose to discuss the symptoms and effects of inflammation in its more obvious results on formation and structure.

These may be divided into local and general; the first affecting chiefly the seat of the trouble, the second the system at large.

∴ We have mentioned before that the local symptoms are as a rule more marked, and, in the order of occurrence, earlier when inflammation is produced by local irritation. The fever which follows may sometimes disguise the local symptoms. The principal local symptoms that have been mentioned, are *redness*, *heat*, *pain*, and *swelling*; to which we may add the various functional disturbances. The redness of an inflamed part is evidently due

to the increased flow of blood to the part, all of its vessels being greatly enlarged, so much so that they receive a larger portion of red particles than in health. The finest capillaries, when congested, are readily seen, whereas, on the other hand, they are invisible, from their admitting only *liquor sanguinis*, with now and then a red particle. They are now distinctly colored from great numbers that pass through them. Some advocate the theory that new vessels are formed by the blood being forced through the textures. But Toynbee says that he has never seen this in experimenting with the frog's web; but those textures that are less vascular, such as the anterior part of the cornea, and cellular cartilage, show it to some extent. Microscopists say that much of the redness is due to stagnant blood in the vessels conveying it through the parts, they being augmented in size. The color of these is much more red than the congested vessels through which the current still passes, on account of accumulation of the red particles. These vessels seem so impacted with this coloring matter that the shape of the blood-discs and the white corpuscles can no longer be seen, yet they are still there; for when we open an obstructed vessel the red mass breaks into clots and particles, leaving many of the white corpuscles adherent to its walls. It therefore is apparent that the obstructed vessels become packed, or wedged, with red as well as white corpuscles, which produces a brighter red than that of congestion. We often observe that the redness of an inflamed part is increased by spots and patches of extravasated blood, which belongs to some varieties of inflammation. The redness of inflammation presents to us a great number of varieties, according to the distribution of the capillaries of the part, and in its general character presents a diffused capilliform redness. This is more striking in the living than in dead tissue, for in the skin and mucous membranes, in life, we see a uniform blush of color, varying from a delicate pink to a bright crimson. After death this peculiarity sometimes is entirely wanting, and again more or less of it remains, which, on examination with the microscope, consists of vesicular stria, network, or points, with here and there ramifications among the larger vessels. The veins are much less distended than in congestion, and redness is less general, and does not radiate or ramify in the surrounding tissues. We must bear in mind that the reason for the disappearance of redness after death is due to

the determination of blood, which is maintained by the action of the heart, and distributed by the arteries; that when this ceases in death, the tonic contraction of the arteries, which survives a few hours, empties the vessels. We have an example of this in cardiac syncope. The vessels that are totally obstructed, and impacted with blood, and have been long congested, in some measure, have lost their tone and give rise to the redness observed after death. This is a good diagnostic sign in comparing the relative elements of inflammation. Thus, in cases where redness has disappeared, we know that the prominent element was local determination, without much obstruction or congestion. We have examples of this in erythematic and diffused membranous inflammations. On the other hand, if after death we find redness remaining, it is safe to say that there has been much congestion and obstruction of the vessels. This occurs in phlegmonous inflammations, in those of parenchymata, and those that have originated in congestion.

The florid hue of redness is a good sign during life of the prominence of determination, for it shows the blood to be chiefly arterial, and not stagnant. In congestion, and where the blood has long been inactive, the color is deeper, but not so deep as pure congestion, for the white corpuscles tend to lighten it; and it is quite probable that the stagnant red particles, in the vessels, retain their power of receiving oxygen from the communicating arteries. The progress of inflammation modifies the redness. The color becomes more florid and deeper. As the inflammation advances to its acme, it either becomes livid before it subsides, or paler from effusion. In complex textures the effused pus, or lymph, changes the redness to pink, flesh, drab, or yellow color.

The *heat* of inflammation obviously depends on the increased flow of blood to and through the part, and it may be of use in determining the amount of blood concerned in the inflammation. Hence, in extensive and active inflammation, the color being florid, we can judge of the amount of vascularity. The increased temperature of an inflamed part is probably owing to the changes going on in the part, and to the greater quantity of warm blood which passes to and through it. Dr. John Hunter made some observations to determine this point, but failed to find the temperature of an inflamed part raised above that of the interior of the body, which we might expect if the lesion was a calorific

process. But that extensive inflammation raises the heat of the whole body, as well as the seat of inflammation, is quite certain; but this may be caused by general excitement, especially of the circulation and respiration, by retarding the perspiration and exhalations, which is nature's means of restoring, or keeping the body in a normal condition as to temperature.

For the purpose of analogy, it seems consistent to admit that inflammation as a process of increased vascular action, may generate heat, and as there is augmenting of the red particles in the part, that are supposed to be the chief agents in the generation of heat, we see a reason for the calorific process, and why the temperature of an inflamed part may be increased. Increased heat is a very important and valuable symptom, since it is the first one we recognize, and is seen more easily than any other, and seems to distinguish inflammation from congestion, and nervous irritation. But to indicate inflammation, the heat must be continuous, and not intermittent, or it will simply indicate determination of blood. Generally the skin is hot and dry; yet it may be perspiring, and still an increased temperature may be present.

The swelling of an inflamed part is caused, in some measure, by the enlargement of the vessels, but principally from the effusions, and it will be proportioned to the amount of them. But the situation, fever, and degree of swelling will depend upon the structure of the part. In serous membranes, the vessels being few, but little enlargement is seen, and effusions not being retained by complexity of structure, soon overflow, and accumulate in the most dependent parts, causing dullness on percussion, and sometimes fluctuation in the chest and abdomen, and, when in large quantities, distending these cavities.

Mucous membranes are more vascular in their structure, hence enlargement of vessels soon causes thickening, but the swelling is mainly due to interstitial effusion in the submucous tissue. We have examples in coryza and cynanche. This effusion, when serous, passes off in the thin flux which attends catarrhal inflammation, with a subsidence of the swelling in most cases, except when the inflammatory process is more solid, then we have a viscid secretion, which becomes opaque, and somewhat fatty in its composition. Sometimes the swelling is diffused and hard, as in cutaneous erysipelas. In urticaria the same hard

swelling occurs in patches, and the effusion in parts exceeds the vascular redness, causing white centers or wheals. In tubercular inflammation of the skin, the redness and swelling are still more circumscribed, and the effusions seem to be mostly solid.

A CASE IN PRACTICE.

BY GEORGE W. KEELY, D. D. S., OXFORD, OHIO.

THE case illustrated below is that of a boy aged 13 years, who came to me in June, 1881. The superior and inferior dental arches were well developed for a child of his age.

It will be seen in figure No. 1 that the incisors, bicuspid and first and second molars are also well developed.

The first bicuspid and laterals are in *close contact*, so much so that it required considerable force to pass a floss silk thread between them.

The points of the cuspids had just appeared through the gum, *wholly outside* the arch (but cannot be seen in the cut). The lad is of Irish descent. His grand parents on his father's side were born in Ireland, and the teeth of both were large and crowded, the grandfather having rather a large dental arch, while that of the grandmother was somewhat contracted, the anterior teeth lapping one upon the other. The dental arches of the boy's father are considerably contracted, and all the anterior teeth very much crowded, but his mother had perfectly formed and well developed arches, all her teeth being in line, without the slightest appearance of being crowded.

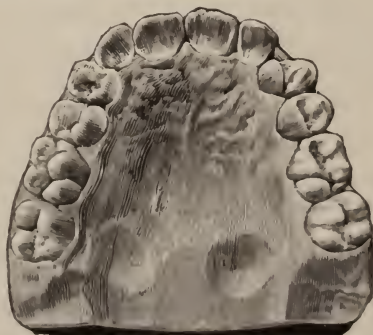


Figure No. 1.

In this case it was possible to expand both arches sufficient to make room for the cuspids to come in place. But to do so it would be necessary to break up the attachment of every tooth in the mouth.

It must be borne in mind that to widen both arches enough for the cusps of the superior teeth to antagonize naturally outside the cusps of the inferior, would have been a matter of doubt, and perhaps ended in failure, besides causing considerable pain and inconvenience to the boy.

It must be remembered that the cuspids require as much space in the arch as the central incisors, *and when the cuspids are removed, the contour of the face is destroyed beyond possible restoration.* The treatment in this case was simple yet none the less important. Both arches being well developed (thanks to his mother) we decided to remove the first bicuspid and thereby give nature the opportunity to correct her imperfect work.

The impression of the mouth, as shown in figure 2, was taken eighteen months after the bicuspid were removed. I did not instruct the boy to press on the erupting cuspids to hurry them into position, as I wished to see the length of time it would require for the pressure of the lip, and the process of nature to bring them into line.

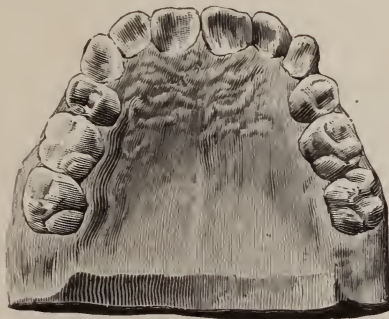


Figure No. 2.

It can be seen in figure 2 that the cuspids are in place. Articulated models taken before the bicuspid were removed, and eighteen months after, show the articulation to be absolutely perfect, the last one taken, showing an expansion of one-eighth of an inch in the region of the bicuspid and molars.

My estimate of the value of the *cuspids* is so great, that had

this been my own son, and had I to decide on the loss of the cuspid or the four bicuspids, the latter would have been sacrificed, believing this to be for the best interest of my patient.

Compilations.

"Gather up the Fragments."

THE CHEMISTRY OF CARIES.

BY W. C. WARDLAW, M. D., D. D. S.

[Read before the Georgia State Dental Society, May 14th, 1884.]

CARIES is, perhaps, the most universal ill to which flesh is heir, and the importance of the study of its chemistry is conceded by the entire dental profession. Its ravages, and the advance of science alike, forbid content with the knowledge hitherto attained, but urge still further progress in search of curative treatment and preventive measures. The fixed routine, tread-mill practice of our fathers, of stuffing teeth with gold, tin, etc., will not do; we must look for the initial cause of this trouble, which antagonizes us, and as we become better acquainted with its peculiar characteristics, we will be able the more intelligently to combat it.

Chemistry being, next to mathematics, the most exact of the sciences, it might seem at first blush an easy matter for the practical chemist to take tooth-substance and acids, and by a system of experimentation, classify the varieties of caries and determine the respective acid producing each. But the oral cavity contains such a conglomeration of matters, and presents such a concatenation of modifying circumstances, that the numerous chemical reactions are distinguishable only by the most scientific expert. Making no pretension to any such qualifications, I can in this paper only travel over the ground surveyed by others, and endeavor to clothe their deductions in such language as may, by its novelty, commend them to the minds of some of you. In doing this, I am naturally inclined to follow in the track of that great pioneer in dental chemistry, Dr. George Watt, of Xenia, Ohio, although Miller and others are not in perfect accord with him.

The various theories of caries have been so closely studied and so warmly discussed by their respective advocates, that one after another has been eliminated, until now there seems to be but two urging their rival claims before the profession, the acid and the germ (bug) theory. We freely admit the presence, and possibly active, influence of bacteria in the progress of caries; but that they are the prime and potent factor in the case, recent investigations seem to disprove. Miller, of Berlin, has most exhaustively and scientifically studied this question, and has come to this conclusion.

The visible effects of caries show it to be a process in which tooth-substance is disintegrated, broken down and washed away. This dissolution can be experimentally duplicated within and without the mouth, through the agency of acids. We therefore assume the truth of the acid theory, and proceed to investigate its "rationale."

The teeth are composed of organic and inorganic, or animal and mineral matters, held together by the powers of cohesion and chemical affinity, and acted upon, as all substances are, by mechanical and chemical forces. The constituents of enamel are inorganic mostly, phosphate of lime (bone phosphate) and carbonate of lime constituting about ninety-five per cent. Dentine, though having more animal matter, is composed of like elements in less amounts. The mineral acids readily unite with these earthy bases, forming salts of various degrees of solubility. If, therefore, we take such acids as sulphuric, hydrochloric and nitric, having this affinity for these bases, and place them in contact with enamel or dentine, chemical action at once supervenes, the strongest affinity asserting itself, and new compounds are evolved.

It is well here to bear in mind that chemical action is definite and specific. There is no uncertainty, like combinations always produce like results. One element combines with another element and produces a third substance; always that, and never another. Hence, we should be able to prove our position, both by analysis and synthesis. We should, as the lawyers say in regard to circumstantial evidence, be able to establish our theory upon this supposition to the reasonable exclusion of all others.

The action of acids upon the teeth are modified by their concentration or dilution of the organization of the tooth, and by the resistance of vitality. Thus, if a dilute acid is placed in contact

with dense tooth-substance, it acts slowly upon it, making careful selection, however, of the particular element with which to combine; and "vice versa." A well-organized tooth, too, is of course more resistive than one with seams and cracks and poorly calcified materials. With these, and other modifying influences duly considered, a carefully conducted series of experiments would ascertain for us the specific effect following the contact of the various acids with the teeth. And such has been done for us.

Sulphuric acid, e. g., has such affinity for water, that it will decompose most organic substances (composed of oxygen, hydrogen and carbon), in order to gratify its desire, leaving dark traces of its foot-prints in the uncombined element, carbon. If, by means of a crack in the enamel, or a poorly calcined spot, or a rough point on a tooth, sulphuric acid, dilute or concentrated, gets a hold upon the tooth, the enamel is gradually disintegrated, the sulphuric acid uniting with the carbonate of lime, leaving the animal matter discolored. Dr. Watt maintains that this is the agent causing the dark appearance in that species of caries known as "black decay," which is generally superficial, slow in progress, and of a dark, often polished, appearance.

He says, that in this variety the organic matter is blackened, or carbonized, but there is only slight disintegration of tooth-substance; just the effect we would expect to observe, where the sulphuric acid unites with the carbonate of lime, which is protected, as it were, by the more abundant and insoluble phosphate of lime circumjacent. There is no difficulty in accounting for the presence of this acid in the mouth, because the always-abundant supply of sulphuretted hydrogen is readily oxidized, affording water and sulphuric acid.

To explain rather more fully: The constituents of the enamel, animal matter, carbonate of lime, and phosphate of lime, are commingled throughout. The phosphate of lime being in excess and not decomposed, the acid cannot penetrate very deeply into it, and it therefore protects, in a measure, the carbonate of lime from destruction, and serves to maintain the shape of the part.

The animal matter is not entirely decomposed either, but is carbonized; that is, its oxygen and hydrogen go to form water, which is greedily seized upon by the sulphuric acid, leaving the carbon in its natural blackness. Hence we see the disintegration is small, the decay is slow, and the color is such as to give the

name of "black" decay. Sulphuric acid will give results similar to these outside the mouth as well, and no other acid will; hence the reasonable conclusion that it is the destructive agent in "black decay."

Proceeding from the decidedly black decay, we find the color gradually becoming lighter, until we reach that generally denominated "brown decay."

Let us next examine its physical characteristics, and look for the chemical agent which has been at work to produce them.

Here the color, in the well-marked type, is brownish, the decay is more penetrating, the progress is more rapid, and the residuum is of a semi-solid, tough, leathery consistency.

Evidently the earthy constituents have been the first dissolved, and then washed away, leaving the organic, or animal matter partly dissolved and in process of fermentation and putrefaction. Hydrochloric acid has been getting in its work here, and something after this manner. The carbonate of lime and the hydrochloric acid are mutually decomposed, the results being water, carbonic acid and chloride of lime. This chloride of lime is a very soluble salt, and is readily washed away by the fluids of the mouth, whilst the carbonic acid escapes as gas. The phosphate of lime is also decomposed, forming a soluble compound, which also being removed, we have left the animal tissue almost untouched; hence the leathery layers of sensitive matter.

This action is well illustrated in the common experiment by the anatomist, where the lime-salts of a bone are dissolved away by hydrochloric acid, leaving the gelatinous portion untouched and still preserving the original form of bone. I have seen the humerus tied into a knot after having been so treated. Now, does the mouth furnish the conditions necessary for the formation of this powerful mineral acid? It certainly does. The great affinity of chlorine for hydrogen results in the formation of hydrochloric acid, whenever they are brought within the sphere of their affinities. The one article of chloride sodium (common salt) so freely used as a condiment, and which too is always found as a constituent of the saliva, abundantly furnishes the necessary chlorine to the expectant hydrogen.

And next we have to face that other foe, which practical experience has taught us so much to dread—"white decay."

Nitric acid, we believe, may be so associated with "white

decay" as to account for all of its destructive features. We are all painfully familiar with its whitish appearance, very rapid destruction and sensitive surroundings, and also the difficulty of arresting its progress by filling. Nitric acid is such a powerful solvent that but few substances can stand before it, and both organic and inorganic tooth tissue succumb to its powerful influence. The soluble salts thus formed are promptly removed, exposing fresh surfaces to be displaced in like manner. If it is in concentrated form or considerable quantity, it sweeps with the besom of destruction. If it is more dilute, it more quietly chooses the material for which it has the greatest liking.

Dr. Watt proposed a very plausible theory to account for this dire destruction. Nitric acid can be, and is, formed in the mouth—although some investigators dispute the fact, because they have not found it present in a free state, in which condition it would, as they claim, be general in its destruction, and not confined to the limits of a carious cavity. They lose sight of the fact that it combines, atom by atom, as fast as it is formed (which is its nascent condition) with the elements of tooth-substance.

Nitric acid, as you know, is composed of NO_5 , and though these two elements unite in several proportions, this is their favorite combination—the others readily decomposing and yielding to this.

In the oral cavity, all the conditions necessary in the case are present. All we want is a supply of nitrogen to be oxidized. Oxygen is universal, in the mouth, everywhere. Ammonia, too, is frequently present in the mouth, as can be detected by its odor, and sometimes, too, it is there combined with that most offensive compound, sulphuretted hydrogen. Ammonia is composed of nitrogen and hydrogen, and whenever oxygen is supplied, it is decomposed into water and nitric acid. Wherever there is putrefaction there is ammonia formed, and if to it we can supply oxygen, we have our nitric acid.

Thus we satisfactorily account for the presence of nitric acid, and reasonably explain its "*modus operandi*" in "white decay." It is often, also, administered as a tonic.

Miller disputes the agency of nitric acid in "white decay," because he has found putrifying meats in cavities of decay, and obtained, from tests of the cavities, an alkaline instead of an acid reaction. This is in accordance with our theory. The alkalinity

is due to the ammonia in the putrefactive process, which is always in excess—the necessary amount of oxygen being added to a portion of ammonia, an atom of nitric acid is at once formed, and immediately, in its nascent state, combined with the tooth element, leaving no acidity to be detected. *Our* nitric is never in excess, and its action is always instantaneous and local.

To lactic and acetic acids is generally assigned the responsibility of destruction in that form of decay known as “chemical abrasion.” The animal and earthy portions of the teeth are equally and rapidly acted upon by them, very soluble compounds being formed which are promptly washed away. Hence, the even, smooth, non-colored surface here presented.

These acids are frequently introduced into, and are readily formed within, the mouth, and if concentrated, and undisturbed for a limited time, will produce just what we so often see to our dismay.

It is difficult to explain the location and the peculiar form of this erosion. The labial surfaces and the cutting edges of the incisors are its favorite localities, instead of a general diffusion over the surfaces of all the teeth.

It would seem that the agent must be located, or concentrated, at the exact point of action, and in order to get it in position, I have supposed that it is an acid mucus copiously secreted, and eliminated by the mucous glands of the lip in the one case, and of the tip of the tongue in the other.

Malic, citric, butyric, and other acids, in concentrated form, would effect the teeth by corroding their general surfaces, as in the case of “setting the teeth on edge,” and thus predispose them to be acted upon by the mineral acids, favorably located.

Being very soluble acids, they are readily diluted by the saliva, and are not apt, therefore, to act upon definite points. In the case of those sensitive spots about the festoons of the gums, it may be more easily understood that they are the result of acetic acid, formed by fermentation at the point.

Whilst we have treated of these several well-defined types of caries, there are cavities of decay not definitely belonging to any particular one of them, but having some characteristics of the others. So it is not necessary that there should be in each case but a single agent, and it acting continuously. There may be two or more different acids, acting together or in conflict, alternately or intermittingly, producing these blended varieties.

The scope of this paper will not permit an investigation of the process and effects of fermentation, vinous and acetous upon the teeth.

JUDICIAL OPINION.

ALTHOUGH we do not agree with all contained in the following paper, yet, as Judge McGary is regarded as an able jurist and constitutional lawyer, we insert it in the JOURNAL, regarding it as timely in view of the fact that our profession is, or at least has been, somewhat agitated in reference to the power and functions of examining boards. We take it from *Health and Home*, of September 15th, and hope that our readers will find valuable information in it, while we do not advise them to take it unquestioned.

ED. JOURNAL.

ARE MEDICAL LAWS CONSTITUTIONAL.

Editor Health and Home :

I acknowledge the receipt of your note of inquiry as to the law in regard to licensing physicians in the States, and also if by the laws of the United States, a license in one State is available in any other State.

In reply, it is not necessary to consider the statutes that the States may have on the subject, but only to state the general principles on which they should be based, in order not to be unconstitutional, or opposed to the genius of our Government.

First, we must not treat the right to practice medicine, as a natural, inalienable or sovereign right, as none of the States have so treated it at any time. And the reason is, that as the object of all government and law is the protection of citizens in all their rights of life, liberty and property, which includes the protection of the common health—and as the practice of medicine may injure as well as benefit it, particularly if improperly and ignorantly practiced—the States have justly treated the practice as a mere statutory right, created by the legislature, and to be authorized and regulated by license. They all have or may provide by statute for licensing all who are competent for the duty, within their own geographical limits, for a State's authority can go no farther. I believe the usual way has been, by the incorporation of medical schools or colleges, with the chartered rights to award diplomas to their students for competency and profi-

ciency in that branch of learning, and which diploma is tantamount to or actually the State's license. This right to issue the diploma is a vested right in the college, not to be annulled or taken from it, without forfeiting its charter, through the medium of a court of justice of its own State. And the license is also a vested right in the recipient.

But the State may doubtless create a board of health or a similar body, and require every physician to register his license with the board, or in the office of the county clerk or other appropriate place. But his right to practice will not depend upon this registration, as the right has already been vested and assured by the diploma and license of the college. And should the State also vest this board of health with the right and even duty of examining and licensing applicants, it could not apply to those who held a license from the incorporated colleges. Nor could it militate against or invalidate in any way the right of the colleges to issue valid diplomas and licenses, before or after; for not even can the State by its legislation divest or impair a vested right which the colleges already had.

But should a State not vest this power in a college or colleges of different schools, but vest it in an examining board, board of health or any other name, it should by all means be composed of men of different schools, for the jealousy among these schools is so great, that if the examiners be of but one school they would be too apt to abuse their powers, to the prejudice of the other schools, no matter what the restrictions imposed on them by the legislature, "such as that no man should be excluded or refused a license because he was or was not of a particular school." If it be true that the allopaths refuse to recognize as physicians the graduates of other schools, they might grant licenses to none but allopaths, and claim that they had not violated the law, because that, although they had refused licenses to the homœopaths or eclectics, yet they had not refused it to men competent to practice medicine. This would be setting themselves over the law, and arrogating to themselves the right to call him whom the law says is a physician, not a physician. In other words, the law says that he who has a competent knowledge of anatomy, physiology, theory and practice, *i. e.*, of medicine, is a physician, and the allopaths say he is not a physician; then the law must appoint as judges those who will not deny its authority; or at least a

sufficient number of the other schools as will nullify their judgment and arrogance, and if the allopaths refuse to serve on the board with those of the other schools, they must take the consequences, and submit to the other schools. Probably there was a time when no school was known, or even in existence, but the allopathic, and it may have been thought that that school had appropriated all the medical ideas that were known or knowable; but intelligence is no more stationary than the world. Many and wonderful are the discoveries and advances in knowledge in the last half century, and it is known that one set of men or one school can not appropriate all knowledge, nor can prevent other people and schools from acquiring the same knowledge that they possess, nor of even advancing beyond them. There was also a time when there was but one church—the Roman—and that outside of it all was corruption and ignorance, but later ages have advanced far beyond the learning of that time, and there are far more schools of religion than of medicine, and yet all are equal before the law.

The examination of medical students, undoubtedly, should be by medical men, but not by any one school of medical men; and if one school is so prejudiced against the other as to do them injustice, the legislature of a State does violence to the genius of our laws and civilization, yea, to the Constitution itself, to make the examiners all of one school. The schools should be equally represented on any such board. And if made up of but one school, and they should refuse licenses to applicants of other schools, they can make but one excuse, and that is, that the applicant has not a competent knowledge of anatomy, physiology, obstetrics, chemistry, and theory and practice; and any one believing he had a competent knowledge and yet refused, might sue out a mandamus against them and oblige them to act according to law. But the best remedy by far is, for the legislature to appoint persons of the different schools on those boards.

If a State has once vested this or any other right in one body or corporation, it cannot thereafter vest the same right in any other board or body, to the prejudice of the first. And in whatever board or college it vests the right, it can and must act only in accordance with its authority, and not *abuse* it. It would be an abuse of it to refuse a license to a man because he does or does not belong to a particular school of medicine. The only

authority the legislature could confer would be to license such men as were found to possess a competent knowledge of medicine, and as that is embraced in anatomy, physiology, and theory and practice, the only power of the examiner would be to ascertain that the applicant was possessed of a competent knowledge of these branches, regardless of what school of medicine he advocates or hails from. That is a matter with which neither the State nor examiner has anything to do. It is the concern only of the physician and his patrons. A man may be an allopath, a homœopath or eclectic, and yet have a thorough knowledge of anatomy, physiology, obstetrics, chemistry, and the theory and practice, or the one as good a knowledge as the other, and each a competent knowledge, and if he has that, he has all that the law can require of him to entitle him to a license.

All this has reference only to persons not previously having a license; for persons already having a license, and then going into another State to practice, may be regarded as having left it behind, and to entitle him to the privilege must obtain it from the State in which he proposes to practice, and must therefore apply to the board or other power appointed by the State for the purpose. This could be changed by the States passing a law to recognize the license of a sister State, upon proof of good moral character. But this involves something to be done by the applicant, viz: to have some one to vouch for his good moral character before some board or authority. The only difference would be that in the one, he must prove his good moral character, and in the other, that, and also that he is possessed of a competent knowledge of medicine—not allopathy, nor homœopathy, nor eclecticism, but of anatomy, physiology, and theory and practice.

Article 4, section 2, of the Constitution, which says, "The citizens of each State shall be entitled to all the privileges and immunities of the citizens of the several States," does not help him in this case, as it is not applicable; because, as I stated above, the practice of medicine is not a natural, but only a statutory right, created by the legislature of the State. For example, it is a natural and sovereign right for every citizen of a State to travel about or cross from one boundary of his State to the other, without let or hindrance by law, and for which his own State cannot tax him. But this gives him not the same right in another State, or even the right to enter into another State. Hence to

avoid this, the section above was inserted into the Constitution ; and by virtue of it alone a citizen of one State has the right to enter and travel in or pass across another State, and without taxation ; because he can not be taxed for the same thing in his own State, and he cannot be taxed in the latter, because it is a natural and sovereign right. But the right to practice medicine, even in his own State, is not a natural or sovereign right ; but a right created by the legislature, and hence we say a mere statutory right. The United States have nothing to do with matters of this sort. They are things peculiarly within the legitimate powers of the States, independent of any interference by Congress.

To those who say there should be a uniform law on the subject, I reply, that could be done only by each State adopting the same law, which they have the power to do if they choose, or for Congress to pass an act ; which it has not the power to do. It must be borne in mind, that if Congress had that power, it would also have the power to regulate marriage, punish for petty larceny, and all the other things that the States alone have the power to provide for, and also the right to prescribe who should have the right to vote, the qualifications of voters, and the regulation of elections in the States. In short, if Congress had this right there would be no further use for the legislatures of the States, as Congress would have all other rights, and the States none. It is true, there are persons who contend that Congress has this right, and perhaps every other right, since the adoption of the 14th and 15th amendments to the Constitution ; but they only express their wish and not their knowledge.

Our Government, Federal as well as State, was and is founded upon the absolute sovereignty of the people of thirteen, now thirty-eight communities, who have never surrendered their sovereignty, the States being *their* States or agency, and the Federal Government *their* Government, *i. e.*, their agency.

All this must be reversed before Congress can pass such laws as above alluded to ; that is, the sovereignty of thirty-eight communities must be surrendered and vested in one agency. Then the agency or government would be the sovereign, and not the people, as now ; and the government might then do as it pleased, regardless of limitation or constitution. But the people will not thus put their liberties at the disposal of Congress, which always

legislates according to the will and pleasure of whichever party is in power.

WASHINGTON, D. C.

W. L. MCGARY.

CAUSES OF DISCOLORATION IN GOLD FILLINGS IN TEETH.

BY WILLIAM HERBERT ROLLINS.

As pure gold is not supposed to discolor, the causes must be other substances which may be introduced in one or more of several ways; they may be present in or on the gold foil when received from the makers; they may be introduced by the operator in making the fillings; they may be present in the mouth itself.

The best way to begin the investigation was evidently to collect the discolored portions of fillings and analyze them. As yet no satisfactory result has been reached in this way, because the quantities were too minute.

The fillings themselves were next examined. Iron, silver, tin, and mercury were found. In which of the ways mentioned did these metals get into the fillings? The first attempts made to answer this question were to get samples of gold foil from the prominent makers, number them, and send them to Dr. Hills, of the Harvard Medical School, to be analyzed. The results of these analyses showed that none of the samples were pure. This was unexpected, as the makers guarantee their foils to be one thousand fine, or absolutely pure. Silver was found in every sample and iron in some. Extensive analyses made by the same chemist a year later showed the same results. The gold prepared by R. S. Williams always contained the least impurities. As the gold when received from the makers was always found impure, a short description of the manufacture may be of value as showing how impurities may be introduced.

The gold out of which foil is made is the mint gold, containing about two parts in a thousand of impurities. The makers dissolve this in aqua regia, filter, precipitate with ferrous sulphate, or more rarely with oxalic acid, wash the precipitate, melt it, and after casting roll to ribbons between steel cylinders. It is then

beaten to the required thickness between pieces of glued skin, which are never clean.

Gold in this form I shall call plain foil, to distinguish it from the forms in use. Plain foil is not in the market. It must be obtained by special order. To get this plain foil into the numerous varieties required by those who fill teeth, it passes through several processes and then becomes soft gold, cohesive gold, gold cylinders, gold blocks, gold pellets, etc., etc.; indeed one market advertises over fifty varieties.

Cohesive Gold. Plain foil is heated (usually on an iron plate.)

Soft Gold. I am not sure how this is made, as makers of foil have their secrets, but as surface impurities have been found on this kind of foil it is probable that, in some cases, the softness is due to those impurities, which prevent two surfaces of this gold from uniting, and thus produce the so-called softness.

Corrugated Foil. Alternate sheets of gold and thin paper are made into a pile, placed between two pieces of iron and heated in a furnace till the paper is consumed. The sheets of gold are then separated, the ash of the paper removed as much as possible, after which the leaves are placed in books, or used in the manufacture of gold blocks, gold cylinders, gold ribbons, etc., etc.

Gold Blocks, Gold Cylinders, etc. These are the forms of gold in most general use. To make them, the foil (usually the corrugated kind) is subjected to various rolling, pressing, and cutting processes by iron machinery.

This brief description of the manner of making gold for dental use enables us to see how easily impurities may be present in the finished product.

Silver, which is always present in the gold before refining, is almost sure to be present after the process, through careless manipulation and poor acids. Iron is likely to be introduced from the ferrous sulphate, from the mould, from the steel rollers, from the plates on which the gold is heated, from the hands, from the machinery used to form it into pellets, cylinders, etc. Other impurities are almost certain to come from the skins used in beating, from the paper used in corrugating, and from the dust of the shop.

To test whether impurities could be introduced by a careful

person in making fillings, the following experiments were tried. The foil used was plain foil, and contained no impurities except a small amount of silver, as shown by a very careful analysis by Dr. Hills:

First experiment. The foil was prepared in the ordinary way, as follows: It was cut with steel scissors, heated on iron, handled with steel tweezers, condensed with serrated steel pluggers, burnished with a steel burnisher. Dr. Hills' analysis showed that iron was present in these fillings.

Second experiment. The same foil was treated as before, only iridium instruments, made by the American Iridium Company, of Cincinnati, were used instead of steel. Iron was found in these fillings.

Third experiment. The same foil was cut with bamboo, handled with gold tweezers, heated on platinum and condensed with iridium points, and burnished with an agate burnisher. No iron was found in these fillings.

This brief description can give no idea of the amount of care and time which has been spent on these investigations. I give a short abstract from one of Dr. Hills' reports, but even this conveys no adequate idea of the amount of delicate works in the analyses:

"It is proper that I should state that great pains have been taken in the analyses to arrive at correct results. In the beginning great difficulty was experienced in obtaining chemicals of the requisite purity, and it was only after considerable time and trouble that acids absolutely pure were secured. In order to make certain that, if any of the metals tested for were found, they were contained in the gold itself, blank analyses were made before each analysis of the gold, using the same apparatus and chemicals."

Thus far the only metals whose presence we have accounted for are iron and silver. The next question which arises is, how came the tin and mercury in the fillings in which they were found?

Almost every dentist now uses amalgam in greater or less quantity. This remains on the instruments in minute amounts, often invisible; and when, by accident or otherwise, the same burnishers perhaps are used in making a gold filling, a little of the amalgam gets upon the surface, showing itself after a time

as a discolored filling. That this is a frequent cause of discoloration I have no doubt, and only by performing all amalgam operations in another room with an entirely separate set of instruments can we hope to get rid of the trouble. As an illustration, I should like to mention the following case: An amalgam filling had been made in the morning, the hands carefully washed, and other fillings of gold made before lunch. In the afternoon a large gold filling had been almost completed, but needed a little burnishing. The gold burnisher was moistened with soap and applied to the filling, which directly changed color. An examination of the burnisher show the same trouble. For a long time I was unable to account for the mischief. At last it was traced to the soap, to which a little of the amalgam must have clung when the hands were washed in the morning after using the amalgam.

In the beginning of the paper three ways were suggested in which impurities might get into gold fillings. I have shown that in the first and second of these ways impurities are introduced, and with regard to the third way the following may be said: Certain medicines, as iron, when allowed to remain in contact with the teeth, cause a discoloration of the *débris* which collects about the fillings and on their surfaces. In the mouths of those who smoke, the deposits of epithelial cells mixed with lime and germs, which collect about imperfectly cleaned fillings, become darkened. This discoloration makes fillings in some cases almost black. Discolored fillings are due to many different causes, as I have shown. In conclusion, the following suggestions, if faithfully carried out, will do away with some of these causes:

Demand purer gold from the makers. Use this in the form of plain foil, because this is least liable to contamination.

Never touch gold foil with steel instruments of any kind. If it is necessary to heat the gold, do this on platinum.

Keep a separate set of instruments for amalgam. Insist upon a thorough cleaning of the mouth every time food or medicines are taken.—*Boston Medical and Surgical Journal*.

TEASPOONFUL doses, three times a day, of Acid Mannate, will keep the bowels in a soluble condition, favor the secretion of bile, and gradually remove the congested and torpid condition of the liver.

Editor's Specials.

"Write the Vision and make it plain."

NERVOUS EXHAUSTION AND FATIGUE.

WE advise no one to work so hard that the strength has to be artificially sustained. But circumstances may arise when work is a necessity, and the requisite strength may be wanting. Chronic debility from disease or advancing age may render labor almost impossible, while, at the same time, the bread and butter question must be practically answered. In such circumstances the following selection may prove valuable. We find it among selected articles in the *Mississippi Valley Medical Monthly*:

Coca.—By H. D. Hicks, M. D., Boston.—Though several years have passed since coca has been introduced into medicine, I find, upon inquiry among my fellow-physicians, that its use is extremely limited. Many druggists do not keep it in stock, saying that they have no call for it. Some have obtained it for me, the only one prescribing it among the physicians sending receipts to their establishments, and I have found a few that confessed ignorance as to both its existence and uses.

I have used it both personally and in my practice, and find it of great service in the following conditions:

To prevent and relieve fatigue.

In those cases of backache accompanied by high-colored urine with excessive amounts of urates and uric acid.

In short breathing dependent upon weakness of the muscles of respiration.

Palpitation of the heart, without valvular lesion, due to dilatation or to weakness of the heart muscle.

It renews the vigor of the intellect, and relieves mental exhaustion, rendering the flow of thought more easy and the reasoning power more vigorous.

It dissipates "the blues," leaving the mind calm. By its use the depression following an indulgence in alcoholic liquors is relieved, and it invigorates the exhausted sexual function due to excessive venery.

It destroys the craving for alcohol, and, in small doses, is useful in sick headache and headache resulting from over-exertion.

Its habitual use as a part of the daily diet conduces to mental clearness and activity, freedom from fatigue, and sound sleep.

I have to relate three instances in which its action seems to me remarkable :

Case I. The first case is my own. When my attention was first called to the article, great stress was laid upon its power of preventing and relieving fatigue. At that time I was accustomed to take long walks about the country, and always came home quite fatigued. I procured some of the coca leaves and determined to give it a thorough trial. One fine autumn afternoon I started out and walked to a town eight or ten miles distant, and, without resting, began the homeward journey, at about one-third the distance of which I became as thoroughly exhausted as I ever remember to have been in my life. Literally, I was unable to go farther, my back, loins and muscles of my legs being lame and painful. I had with me about one-half or three-quarters of an ounce of coca leaves, which I proceeded to chew and swallow. In less than twenty minutes all fatigue was gone, the pain in my back and legs had fled, and I started homeward at a swinging gait, arriving there as fresh as when I started. Ordinarily such a walk would have laid me up for two days, but the next morning saw me perfectly well and ready for another tramp. I have used it since on long tramps, with the effect of not becoming fatigued during even the longest.

Case II. A lady friend and patient is occupied during the months of August and September in the business of preserving the various fruits and vegetables for market. Hitherto at the end of the season she has been utterly worn out by her exertions, and an attack of illness has been the general result. During the last summer (1883), by my advice she used the fluid extract of coca whenever necessary to relieve her fatigue, and, though working harder than ever before, on account of an increased business, has by its use been enabled to pass the season without losing an appreciable amount of flesh, and without great fatigue. Previously she had been troubled with intolerable pain in the muscles of the arms and hands, which prevented sleep at night. This summer has seen a total abolition of this annoying symptom, and the nights have been passed in sound, refreshing sleep.

Case III. A physician, about sixty years of age, employed in clerical work, has been troubled since youth with a dilated

heart without valvular lesion (the description of his symptoms is his own). The least hurry, exertion, or mental worry resulted in palpitation and dyspnœa. In Boston at various periods of the year we have very damp, oppressive weather, whether warm or cool, when the air is saturated with moisture. On such days even a well man is uncomfortable, but the gentleman above mentioned dreaded these days most of all on account of the extreme distress arising from short breath, palpitation, and also faintness. His nights for the greater part of the time were almost sleepless, three or four hours at the utmost being his daily allowance of slumber. On account of this insomnia, the hours when others slept were devoted to labor, thus aggravating the trouble.

The only thing that would alleviate the oppression was whiskey. Digitalis, even in the smallest doses, so excited the irritable heart that its action became so violent that respiration was seriously compromised. Hyoscyamus, too, was of no avail. Several times he has fallen insensible, and once or twice has been revived only with great difficulty and prolonged exertions. At the periods of attack of palpitation and dyspnœa the stomach was unable to digest food.

On the whole, his condition was serious, and, though he was able to attend to his work, he expected at any moment to be taken away.

About two months since I recommended him to take the coca, and soon after he obtained both the leaves and the fluid extract. After taking it for a few days he told me, on a close, damp day, such as formerly caused him the greatest suffering, "I don't know that I have a heart." Since that time, though we have had bad weather, he tells me that he has not experienced the least trouble. From being an anxious, quiet man, he has become cheerful and companionable. His appetite has improved and he has gained flesh. He has no need for stimulants, and the craving for alcohol has left him altogether. Instead of passing the greater portion of the night in work, he spends it in sleep. To illustrate this : One night he had worked until about 12 o'clock, and thought to lie down upon the lounge, rest a few minutes, and then resume his occupation. He fell asleep, and woke up at six o'clock in the morning, the first time he had slept so long at one time for years.

I do not doubt but many of your readers can relate parallel cases. I am using it in all cases in which the balance between

nourishment and waste is not maintained, and find it a valuable assistance. In regard to the dose, I think that the one generally given on the bottles—viz., 3 j-iv—is too much. I find just as good effects from 3 ss for an adult.

SIMPLE MEANS OF OBTAINING ANÆSTHESIA.—Dr. Cheize reports a case in which, wishing to remove an ingrowing toenail, and being without a spray producer, he covered the toe with a pledget the size of a crown piece, poured ether on it, and evaporated this by means of a pair of bellows; in five minutes anæsthesia was complete and lasted while the nail was removed, and the matrix seared with the actual cautery.

We think this little item has been in the JOURNAL already, but as it is better than the spray, as well as more convenient, and as we have not heard of our readers using it, we give it again.

ED. JOURNAL.

“A PROVOKING BLUNDER.”

“WHEN the first form of this number was presented to us for final revision, we wrote, as plain as the nose on the compositor’s face, a correction of the foot note upon page 552. ‘Miss Kilmansegg and her Wooden Leg,’ is the name of the poem referred to; but when the form was all printed, we found it as it appears—Kilmanugg. Ugh! As if we did not know a name with which we have been familiar from childhood.”—*Independent Practitioner*.

We don’t wonder at the good editor’s annoyance. But “ugg” is not the only ug-ly thing about the affair, even after the vexed editor’s explanation. Been familiar with the name “from childhood” (?) Not very familiar, or he would not have called the spoiled girl’s proxy nether extremity “her Wooden Leg.” For, just listen to the girl herself—

“But when it came to fitting the stump
With a proxy limb, then flatly and plump,
She spoke in the spirit olden;
She couldn’t, she shouldn’t, she wouldn’t have wood,
Nor a leg of cork, if she never stood,
And she swore an oath, or something as good,
The proxy limb should be golden.”

Where's the "wooden" to that, Mr. Editor? And you let your correspondent call these exquisite lines "a doggerel verse that I found in a dental journal some years since."

The JOURNAL readers don't need to be told, but we'll tell the *I. P.* brothers that Thomas Hood, late of England, one of the best English poets, and perhaps the most noted punster that ever lived, wrote a very ingenious poem, apparently to show how many crooked words he could make lie smoothly in rhyme, and he called it "Miss Kilmansegg and Her Precious Keg." *Precious*, instead of "wooden." And if the *I. P.* contributor finds another piece of doggerel in a dental journal, we advise him to keep it, even though it may have been written by Milton, Shakespeare, or Virgil. All of this goes to show that we sympathize with both the editor and contributor.

Our Aftermath.

MOUTH AND NOSE BREATHING.—Dr. Guye (Amsterdam) read a long paper before the International Congress of Hygiene, on the dangers of the ordinary habit of breathing through the mouth, as regarded both the respiratory and the hearing organs. The habit was the source of many diseases of the nose and ears. Respiration through the mouth was simply a complement of nasal breathing, the safety-valve when the ordinary respiration through the nose was obstructed or imperfect. New-born children and uncivilized people did not breathe through the mouth. The use of a respirator devised by Dr. Guye, consisting of a band placed over the lips, to prevent breathing through the mouth, had been followed by good results in many cases of nasal affections. He laid stress on the necessity of mothers teaching their children to keep their mouths closed.—*Miss. Val. Med. Monthly.*

PAPER TOWELS FOR SURGICAL PURPOSES.—Dr. Roberts, of Philadelphia, has been using with much satisfaction Japanese paper handkerchiefs for drying wounds. Sponges are so seldom and with such difficulty perfectly cleansed after being once used, that they are never employed in the clinic. Ordinary cotton or linen towels are much preferable to sponges, but if dirty are liable to introduce septic material into wounds. The paper towels answer the same purposes as cotton ones, and are so cheap that they can be thrown away after being used. They cost from \$6 to \$7.50 a thousand. The cost of washing a large number of ordinary towels is thus avoided. The paper towels are scarcely suitable for drying hands, after washing, unless several towels are used at once, because the large amount of moisture on the hands soon saturates a single towel. For removing blood from wounds, a paper towel is crumpled up into a sort of ball and then used as a sponge. Such balls absorb

blood rapidly. The crude ornamental pictures in color on the towels are of no advantage, nor are they, as far as known, any objection.—*Exchange*.

We called attention to the Japanese paper as a substitute for sponges once before; but "line upon line," you know, is necessary in bringing about revolutions in practice. In this improvement we feel certain that the dentists lead the general surgeons and physicians, and they have used the paper as a substitute for linen napkins as well. Sponges are never above suspicion.

ED. JOURNAL.

PERIOSTEUM GRAFTING.—Dr. C. M. Trueheart, of Galveston, reported a case in which he removed the periosteum of a dog and transferred it to a man, with the result of the development of three and a half inches of clavicle.

Such dogged energy and perseverance in surgery are not often manifested; but success is successful, you know. We hope to hear of further research in this direction. The above was reported at the late meeting of the Texas State Medical Association.

TONGALINE.—We wish to call the attention of our readers to this new remedy for neuralgia and rheumatism. Having a case of neuralgia recently which did not improve under the ordinary treatment, we had Messrs. Bush & Co. order some Tongaline for us, which we gave our patient. It acted admirably, relieving the patient before many doses had been taken. Since then we have had occasion to prescribe it several times, and with the same good results. We believe Tongaline is destined to be the remedy for neuralgia, and the testimonials from noted physicians and surgeons tend to strengthen such a prediction. Try Tongaline, and you will thank us for the suggestion.—*Extract from the January ('84) number of the Eastern Medical Journal, Worcester, Mass.*

As dentists are about as often and as deeply interested in neuralgia as physicians, we hope some of our readers in active practice will give the agent a practical trial, and report results to the JOURNAL.

ED. JOURNAL.

CHLORAL HYDRATE AS A VESICANT.—Powdered chloral sprinkled on adhesive plaster and melted by a gentle heat (not more than enough to cause the plaster to adhere to the flesh) is applied while warm to the part where the blister is wanted; within a few minutes a gentle heat is felt, increasing in intensity for a short time, then gradually easing off, and at the end of about ten minutes the part is free from pain. At the expiration of this time, or as soon as the pain has subsided, the plaster, if removed, will disclose a surface as effectually blistered as by a cantharidal plaster after six hours. Thus within about ten minutes the work of an old-fashioned blister is accomplished, with many advantages over the latter, (1) rapidity of action, (2) the ease of application, (3) the non-occurrence of strangury, and (4) farther, it may never be taken off to have the blister dressed, but it may be allowed to remain until the plaster loosens and comes off itself, the blistered surface in the meanwhile healing kindly.—*A. M. Fawcett, M.D., in the Southern Clinic.*

If the above is a true statement, the chloral plaster may be used with advantage in incipient dental periostitis, in place of the torturing capsicum bags.

ED.

LACTIC ACID occurs in sour milk from the spontaneous fermentation of sugar of milk under the influence of casein; this transformation is called *lactic fermentation*. A similar change is produced in dextrine, glucose, cane-sugar, etc., by the action of casein and other protein compounds. It is found in many vegetable products which have turned sour. The sarcolactic acid of flesh and muscle is very sour, and in excess causes rheumatism. It is soluble in ether, alcohol, and water, coagulates milk and albumen, displaces carbonic and acetic acids, and yields salts soluble in water and alcohol. It has been used in dyspepsia in place of hydrochloric acid; and when given in diabetes symptoms of acute rheumatism have appeared which have subsided on stopping the acid. Inflammation of the joints and pericardium have been caused by it in animals. It is useful in all alkaline diseases, including typhus and typhoid fevers, erysipelas, diphtheria, etc.—*Med. Record*.

As lactic acid is now attracting unusual attention in our profession, we incline to give all the items of information in reference to it that we can.

ED. JOURNAL.

BROMOFORM.—Although this new anæsthetic was discovered by Lowig, as early as 1832, its physiological action has been but recently tested. Dr. Herroch reported to the Society of Physicians, of Vienna, the result of a series of experiments performed upon rabbits and cats—first, by inhalation; second, by hypodermic injection; third, by giving it by the mouth. By inhalation narcosis was easily produced, the anæsthesia being complete; the excitation stage short, mild and not followed by vomiting. Hypodermic injections of one gramme produced, in large animals, complete narcosis, lasting for an hour, and associated with a considerable fall of temperature. Internally administered, in doses of one to one and a half grammes, sleep was produced of several hours' duration. Three men had been successfully anæsthetized in Prof. Albert's clinic, with but little excitation and struggling, and no subsequent disturbance of the stomach. Children yielded to its influence readily. The vapors were somewhat irritating to the respiratory passages, yet as an anæsthetic it was believed to be milder than chloroform.—*Miss. Med. Monthly*.

MANY have become victims to the use of opium and morphine from the administration of these drugs for the relief of neuralgia. It is very gratifying to observe that such dangerous consequences may be averted by the use of Tongaline or Liquor Tongæ Salicylatus, which is almost a specific in the acute forms of that complaint.—*Extract from Med. Brief*.

BROMIDE OF NICKEL IN HEADACHE.—Dr. J. M. Da Costa concludes from his experience that the bromide of nickel is more effective in the congestive form of headache than any other preparation of bromine. He gives it in doses of from five to seven grains.

How is a cell nourished? By what mechanism does it perform its functions? How does it produce its like? These are simple questions indeed; but when we have the complete answer, there will remain but little to know.—*Greenfield*.

MALARIAL GASTRALGIA.—Dr. N. O. D. Parks, of Ashton, R. I., writes: "The following case may prove interesting as an example of the hydra-headed manner in which malaria manifests itself. K. H—, a young married woman, has been subject to severe attacks of gastralgia since the birth of her first child about ten months ago, when they occurred for the first time, and have been hitherto amenable to treatment. She had one on June 7th, and called in a physician who administered morphine hypodermically. I was sent for June 10th. She seemed to derive no benefit from morphia, viburnum, Hoffmann's anodyne, nor any of the usual remedies, external or internal, the paroxysms apparently subsiding of themselves after the lapse of four or five hours, to return with increased violence, at every other day, but finally they recurred every morning, accompanied by vomiting, which brought no relief. This periodically led me to administer quinine in full doses, which promptly aborted the attacks. After three days I lessened the amount of quinine, and prescribed arsenic in small doses, and she has had no recurrence of the malady."—*Medical Record*.

Those in malarial districts will do well to give this article close attention.

ED. JOURNAL.

THE ONION AS AN ANTIDOTE TO STINGS AND BITES.—We clip the following item from the *Medical Age*:

"An old woodsman of Australia, who used to catch snakes for a pastime, says that a raw onion bruised and applied as soon as possible to the wound, is a certain cure for the bite of all venomous serpents of that country, except the death adder, which he admits is so poisonous, and its poison so quick in acting, that there is no known remedy for it. That the onion is a specific for the stings of poisonous insects of all kinds has long been known to the writer of this paragraph, who, when a boy, invariably carried one on expeditions with his companions, against hornets' nest, etc. It was found that the application of onion juice would instantly allay the pain caused by the stinging of hornets, yellow-jackets, wasps, etc."—*The Medical Index*.

Try it for the bites of the mild and musical mosquito. ED. JOURNAL.

NUTRIMENT is the one thing we want for bodily power, and for mental also. So we see every little while a list of articles of food with the nutritive quality of each. A study of these accounts for many things not often remembered. It is a well-known fact that two-thirds of mankind live on rice with only very little else besides. In this country we think that beef is the most nutritious food to be had, while the fact is rice is three times as good for body-building, or accurately stated, rice gives eighty-five and beef twenty-five per cent. of nutriment. The cost of rice is far less than beef; therefore, hurrah for rice!—*Californian*.

MORPHINE IN THE VOMITING OF PREGNANCY.—Dr. W. C. Roberts, Albany, Wis., writes that in three cases of obstinate vomiting of pregnancy he successfully used muriate of morphine per rectum in half-grain doses. Dr. R. asks for the experience of others with morphine given in this way.

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"A word fitly spoken is like apples of gold."—SOLOMON.

INTRODUCTORY LECTURE OF THE 39TH SESSION OF
THE OHIO COLLEGE OF DENTAL SURGERY,
OCTOBER 8, 1884.

BY J. S. CASSIDY, PROFESSOR OF CHEMISTRY.

THE members of the Faculty having seen fit to make me their representative this evening, I deem it proper to state, in advance, that they should not be held responsible for *all* that I shall say.

Were I to choose a text to which my remarks could be applied, I should select, in a somewhat restricted sense, "The Past *versus* the Present," as the most appropriate.

It matters not what the subject or object may be, in a lecture, or essay, or *sermon*, or even a political speech, or in conversation, the times and trials of the ancients, are ever a most prolific source of interest and instruction.

It is only in the progress which we have made in the knowledge of *physical nature*, that our superiority over all former epochs in history is to be sought for and found. For there can

be no doubt that a real superiority over all past ages can be claimed by this nineteenth century in which we live.

We have not, indeed, surpassed the ancients in the highest sphere of human activity. It is not to be imagined that in philosophy, in poetry, in architecture, in painting, in sculpture, anything has been achieved in our age, which surpasses,—which equals the conquests made in long gone ages by our race. The most wonderful structure on the face of the globe to-day, is the oldest, the much-abused great pyramid of Egypt—the largest, the highest, the most wonderful of buildings erected by human hands. The poetry of the Greeks is forever the best; their language, though dead, is, by an almost incalculable degree, a finer and more delicate instrument of human thought, than any modern tongue.

In mere speculative philosophy we have produced no mind in modern times to be compared to that of Plato. And all our architecture is borrowed from the Greeks, with the exception of religious architecture, which comes to us from the middle ages. Eloquence is almost a lost art: although we are crammed by what passes for it, by our present political discussions. No man can truthfully call himself an orator who has even a faint knowledge of what Demosthenes was able to do with his gift of human speech. So it is vanity—nay, it is childish, to imagine that *in many things* we are, in any way, superior to our predecessors on the stage of life,—to those who lived 2,000 years ago. Certainly here in America—(and I yield to one in love of country),—where the chief study is physical science, we have produced no great man who will be ranked higher than second or third-class in the category of scientific future ages. We are, in too many things, the disciples of foreign thought. But, not to dwell too long on this subject, I say that our age possesses a superiority of a most real kind; and in its striking prominence and characteristics, this superiority is to be attributed to our better, wider, and more thorough knowledge of that which pertains to material nature.

Let us pause a moment, and look back at the progress of physical science in other days, in order that we may the better appreciate the present.

The first authentic evidence of investigations into the nature of matter, appears to the credit of the Egyptians; and one of them named Trismegistus is represented as the father of alchemy.

He labored, as all subsequent alchemists, in the vain effort of discovering a process for converting baser substances into gold and silver, and of eliminating, from some mysterious mixture, the elixir of life, the liquid that would, by a simple taste, restore to the aged, weak and tottering man, his lost youth and strength, and to woman, beauty.

The alchemy of the Arabians came later, and was far more practical and useful than that of the Egyptians. Their dream also was transmutation, but in their searches after the probably impossible, they discovered many valuable compounds and methods of investigation. They had their pestles and mortars, crucibles and furnaces, alembics and aludels. They had vessels for infusion, decoction, sublimation, filtration, and coagulation. They worked with gold and silver, copper, mercury, arsenic and sulphur, salts and acids, and became acquainted with a large number of bodies now called chemicals. They taught that there were but three elemental substances, mercury, sulphur and arsenic, and these, especially the first two, received most enthusiastic attention. They considered the metals as compounds, made up of mercury and sulphur, united in different proportions. They saw mercury dissolve gold, the most incorruptible of bodies, as water dissolves sugar; and a piece of sulphur, presented to red hot iron, penetrates it like a spirit, and makes it run down like a shower of golden drops, a new and wonderful substance, possessed of properties belonging to neither iron nor sulphur.

One of their number, Geber, wrote a book on the subject, and called it, "*The Summit of Perfection.*" It is the oldest book on chemistry, and, although to us full of ridiculous nonsense, it is truly a remarkable performance.

From the Arabs alchemy found its way through Spain into Europe, and soon became entangled with the fantastic mysticisms of the scholastic philosophy then existing. Their earliest works on alchemy are those of Roger Bacon and Albertus Magnus, both of whom flourished contemporaneously in the thirteenth century.

Bacon was acquainted with the properties of a mixture, since known as gunpowder; and, although he condemned magic, charms, and such things, he firmly believed in the convertibility of the inferior metals into gold. He had more faith, however, in the so-called elixir of life, than in gold-producing. He followed the Arabian Geber in regarding the solution of gold in *aqua*

regia as the true elixir, and cites a supposed case of an old man, who, plowing one day in Italy, found some yellow liquid in a golden vial, and thinking it was, perhaps, *his* kind of mountain dew, drank it off, and was immediately transformed into a strong and highly accomplished youth.

Albertus Magnus, in addition to the mercury and sulphur theory of the metals, as held by the Arabians, regarded water as much nearer the soul of nature than either of those bodies. He appears, indeed, to have thought it the primary source of all things. Thomas Aquinas was the first to use the word amalgam, and Raymond Lully the first to introduce the use of chemical symbols, his system consisting of a scheme of arbitrary hieroglyphics.

Basil Valentine was the first to introduce antimony as a medicine, and by its sickening effect on the monks of his own order, on whom he experimented, it received its name. He regarded mercury and sulphur and common salt as the three bodies contained in the metals. He inferred that the philosopher's stone must be a compound of these substances, so definitely pure, that its projection on the baser metals, should be able to work them up into a condition of greater and greater purity, bringing them at last to the purity of silver and gold. His practical knowledge, however, was widely extended; and he is regarded as the founder of analytical chemistry.

But, perhaps, the most famous of all the names in the annals of alchemy is that of Paracelsus. He agreed with Valentine, that the elements were salt, sulphur and mercury; all kinds of matter, were, he thought, reducible, under one or other of these typical forms. Everything was either a salt, a sulphur, or a mercury; or, like the metals, a compound of these. There was one element, however, common to the four; a fifth essence or quintessence of creation, an unknown and only true element, of which the four generic principles, salt, sulphur, mercury and the metals, were nothing but derivative forms. In other words, he taught that there is only *one* real elementary matter, nobody knows what. This one prime element of things, he considered to be the universal solvent, of which the alchemists were in search.

After Paracelsus, the alchemists of Europe became divided into two classes: one was composed of sensible, practical workers,

and observers of facts. The other class took up the visionary, fantastic side of the older alchemy, and carried it to a degree of absurdity before unknown.

The seven metals they then knew, correspond with the seven planets, the seven openings of the head, the eyes, ears, nostrils, and the mouth. Gold was Appollo, silver was Diana, iron was Mars, tin was Jupiter, lead was Saturn, and so on. They talked incessantly of the powder of special attraction, which drew all men and women, after the fortunate possessor. They talked of the *aleahest*, the spirit of matter, and the grand elixir, which was to give an immortality of youth to him who should approve himself pure, and bold enough to kiss and quaff the gold draught. There was the great mystery, the mother of the elements, and the grandmother of stars. It was in connection with this work alchemy, mixed up with astrology and magic, that barefaced quackery in medicine abounded, and, indeed, it is so, to a not inconsiderable amount, at the present time.

It is from this degenerate class of visionaries and imposters, that the prevailing idea of alchemy is derived, an unjust aspersion upon the character of the really meritorious names who paved the way for the advancement of genuine chemistry.

Many of them were too intelligent to waste their time and substance in dreaming of the golden terrestrial immortality to be found only in the mythical philosopher's stone. They prepared medicines and pigments, metals and metallic alloys, soap, and beer, and vinegar, and common soda, and sal ammoniac, glass, enamels, tiles, and painted earthenware. Still they merely groped in the midst of the tantalizing wealth of nature's laboratory. They were artistic, not scientific.

The first evidence of a real science of chemistry appeared after the discovery, by Brandt, in the latter half of the seventeenth century, of the weirdlike, luminous body, called phosphorus. This discovery of a hitherto unknown element, although purely accidental, and cherished as a costly secret, for many years, appears to me to mark the beginning of modern chemistry, especially when taken in connection with the fact that soon afterward, Silvius and Thomas, Willis and Boerhave, established an important school of medicine, founded mainly on chemistry and mechanics.

To the more positive thinkers, however, as Lavoisier, Priestly,

Scheele, Galvani, Volta, Sir Humphry Davy, Faraday, Berzelius, and other names, of almost equal brilliancy, physical science owes its rapid exaltation.

Now, gentlemen, let us pass over the discoveries of the lost past and present centuries, and consider physical science as it is to-day. Our time this evening, thank goodness, is limited, and besides, these discoveries are much like the household goods and chattels offered for sale, in our fathers' time, too numerous to mention.

All modern science rests upon fundamental bases. The first characteristic which marks the modern scientific view of nature is the *mechanical* quality of all material things or substances. All of our modern scientific men look upon matter as *force*. Just think of it! Matter merely force!—a mode of motion, if you wish. That is what we know of matter, in the end. It is a force. What we call light is not light, in itself. It is light, only as a human sensation. In itself, it is a mere form of motion. How well I remember, some fifteen years ago, hearing our own Dr. Atkinson, of New York, lecture on physiology, wherein he stated that the forces of nature were not as we conceived, they were only “modes of motion;” and I thought he was a lunatic.

There are certain general principles known to every man who is intelligent, and can observe. All modern science accepts the fact that heat, light and electricity are modes of motion. In fact we have no knowledge of a body at rest. Our idea of a body at rest is erroneous; it is not at all at rest, but is moving at a rate which is simply inconceivable. We cannot rely upon our senses. In a stone for instance, apparently at rest, there is a motion—a motion more rapid than we can conceive. Take again, for instance, a glass of water, which seems to be quiet in the tumbler. Chemistry tells us that its molecules are never at rest. This compound, when formed by union of its constituent gases, is a liquid. But try to liquify them separately, and a pressure of twenty tons to the square inch is not sufficient to produce the effect. The moment their chemical affinity is brought into play they become a liquid. In a pound of water there is as much force as is developed by allowing a ton to fall from the height of 20,000 feet, or which is the same thing, to lift a ton of matter 20,000 feet high.

All impressions are produced by manifestations of physical

force. To account for the phenomenon of light, we necessarily suppose the existence of a substance, which cannot be seen, which cannot be weighed, and which pervades all space. Four hundred and fifty million millions vibrations a second, give us red. Seven hundred million millions violet. The difference in color is merely one of rapidity of vibration. You hear my voice; the motion of the vocal organs produces waves in the air, which act on the tympanum of the ear. We have learned from habit to classify these vibrations, to attach a definite meaning to them, and make them signify certain ideas. Modern science, therefore, looks upon all physical phenomena, and physical processes as mechanical. Vibrations falling upon the eye give us a variety of color; those falling upon the ear produce a variety of sounds.

The next view of the nature of matter is that "Matter is one." Not that all material substances are one. What I mean is, that what we call the properties of matter, as hardness, color, etc., are not in the matter itself, but in the form of motion, and in the manner it affects us. All matter is form and motion. Our sense of taste tells us that sugar is sweet. What is sugar, after all, but charcoal and water? Science tells that it is a compound of C. O. H., these substances which, in their atomic nature, are without the properties of taste. Consequently, what we call sweetness is not in the sugar, but in the way it acts on our organs.

There is nothing more important than the essential difference between psychical and physical qualities. Matter is one thing, the human mind another. Matter affects mind. That which affects the material body in its manifestations, also affects the mind. The world, which is, in itself, but matter and form, coming into contact with the human soul, produces delight and pleasure, another form of unity of matter.

The third characteristic is the transformation of force, or the transference of motion. Take a machine, and set it in motion, and you develop electricity. Electricity, in turn, will develop heat and light, thus converting motion into light and heat. Apply burning coal to water, and you produce steam. Apply that steam to the piston of the engine, and you can be carried where you will. Here we have heat converted into motion. If a train moves rapidly enough, it will fire the boxes,—a transfer of motion into heat. So that in nature we find a law which governs the transformation of one kind of motion into another, light into heat, heat into electricity, etc.

The fourth view of matter grows out of the persistence of force, or, "The indestructibility of matter." Our best idea of destruction comes from combustion. Or, a piece of wood undergoing decay, is undergoing exactly the same process as when burning, but its elements are not destroyed. The atoms are simply liberated, and are re-united into other forms. There is no such thing as the destruction of matter or force. When I say matter and force, I say the same thing, a something that moves, and by moving makes an impression on our senses.

The fifth, and the final characteristic, and I think the most remarkable, is the mathematical expression of matter; and the whole tendency of physical science is to reduce all our knowledge of the material world to mathematical expressions. Theories of light and heat are purely mathematical theories. The scientific expression for the different colors is so many waves in a second, beginning with the red and ending with the violet. Thus it is possible to calculate, mathematically, every tone of the human voice, every tone of every instrument constructed by human ingenuity, by the number of vibrations in a second. This, indeed, is the whole tendency of physical science, bringing it all to number, wave, form; the higher mathematics aiming to get a complete mathematical expression of the universe.

All animal and vegetable matter contains a certain proportion of constituents. Aye, and the molecules, of any *one* kind,—each contains the same number of atoms, neither more nor less. In such a number of months the earth goes round the sun. There is of course, descriptive astronomy, but the *science* of astronomy is purely mathematical. The science of chemistry is becoming more and more mathematical. Mathematics is fixed, eternal. God himself cannot change it. Two and two make four is a truth fixed and immutable from eternity. All true science rests upon the principles that I have told you.

Now, gentlemen, this rostrum is not a pulpit, nor should it be; however, I shall not apologize for saying that, viewed from even a materialistic standpoint, there is nothing unreasonable in the claim that our identity, in this life, shall be continued, after the occurrence of that natural phenomenon we call death. Our knowledge of nature is not more immediate than the knowledge of the soul. We know our own thoughts, our own feelings, and through these only, we know the world. And to us, matter is only known by what it does. It is said to have weight; but if

gravitation is, as seems probable, only "a wave motion, correlated with light, heat, electricity, etc., we are deprived of the most significant method of designating matter in its apparent conditions." Matter has form, substance; but if, as has been proved, the interstices between the molecules, so-called, are so great as to permit ceaseless motion, an unending clashing of forces, our ideas of solidity, or substance, vanish. If matter is not what it seems to be, in so far as weight and substance are involved, there is little left in the universe but what is regarded as force and "ether;" and of the nature of these, we know nothing, positively.

The ether of space, concerning the existence of which there is scarcely any room for doubt, is matter, but in such an attenuated form as to approach the *supposed* condition of spirit. Prof. Tyndall thinks this ether to be matter, but not a form of ordinary matter.

As we do not understand the form of ordinary matter, it is hardly philosophical to assume that an unknown form, is like or unlike another no better understood. The existence of atoms and molecules is assumed; but have we any *proof* of the existence of these bodies? or have we any language in which we can satisfactorily describe them? We can easily conceive of things we cannot see; but when we come to atoms, the mind can no more comprehend their minuteness, if they exist at all, than it can the infinity of space in the stellar universe.

It is clear, if we do not know what matter is, that the nature of material man is still an unsolved problem. As he stands revealed to the sense of sight, we have impressions of form, of substance, of that which is real. These impressions answer all the purposes of our material condition of existence. Life may be a delusion, a dream; and there is much to lead to such a view; but it is, nevertheless, active, real and crowded with momentous duties and responsibilities.

The originators, the fathers, of modern science,—such men as Galileo, Copernicus, Kepler, DesCartes, Farady, Newton, Agazziz,—not to mention any of the living—all believed that the life principle of humanity, even though it were but a mode of motion, would continue to vibrate through all eternity.

These thoughts, gentlemen, lead me to the conclusion, that there is nothing, absolutely nothing, material or spiritual, of which we can say, "we know enough," and furthermore, so vast

is the field of knowledge, in any one direction, that man, in order to best qualify himself for the duties of life, must divide and subdivide this field, and be most earnest in cultivating the comparatively small portion which he can claim as his own. For this reason, it is the man who makes a special study of some one line of thought or practice, who leads in all important discoveries.

"One science only can one genius fit,
So vast is art, so narrow human wit."

As you proceed, gentlemen, in your studies of dental surgery, you will gradually begin to consider its relation to other callings, and especially to the general practice of medicine. And this remark, by the way, might apply to some older heads than yours.

You will, perhaps, imagine that dentistry might be more honored by being recognized as a specialty of that rather cumbersome, and therefore, rather inflated profession.

Let *me* say, however, that dentistry is now old enough, large enough and sufficiently strong, to stand by itself. No one but a bigot, or an idiot, would say that our young giant had no possessions in that portion of the world called "Therapia;" but, in order to preserve its symmetry as it is, we should make no entangling alliances, nor seek to enlarge its field of industry beyond its own requirements. Let us, rather, remain distinctively individual and give freely to science, and receive gratefully in return, whatever appears to us as most useful, and beautiful, and good.

The romantic truths of physiology and histology are as free to us as to any other branch of science. There is no *open sesame* necessary to the illimitable domain of chemistry; no restriction to us in the use of any preparation of the pharmacist that we may deem of benefit to our clients; no circumscribed boundary in our pursuit of knowledge in pathology or therapeutics, and no limit to the depth and breadth of our seeking into the secrets of anatomy.

There can be no objection, in a dental graduate, if blest with sufficient time and money, and inclination, to graduate also in general medicine; but this step is becoming more and more unnecessary every year. Life is too short, and special honors too difficult to obtain, for the average young dentist to waste the energies that could be more profitably employed in competing for the tangible distinction which dental practice and literature can

confer. In *his own* atmosphere, the sunshine should be brighter, the birds should sing more sweetly, and the flowers should be more beautiful than elsewhere.

THE NUTRITIVE FUNCTIONS.

BY DR. A. T. DOUDS, CANTON, O.

THAT mysterious union of an unknown force with matter which we term life, Bichat defines as "the aggregate of the functions which resist death," and which he classifies under two heads, viz.: organic and mineral life. The first comprehends the various functions concerned in maintaining this union, whether during assimilative or retrogressive change; the second, those functions which distinguish man and animal from other forms of life.

The maxim of Harvey, "*Omne vivum ex ovo*," all life springs from an egg or cell, stands uncontradicted, and in which cell, the combination of heat, light, and force, obtained from without, reappears in the form of vital force, which, like all other forms of force, only shows the dynamical conditions through which the integrity of the parts is maintained.

In the cell we find "the ultimate physical elements of organization," and being endowed with life, and an independent and definite period of existence, unless destroyed or hardened, it dies at the expiration of its time and is cast off.

Each molecule entering into the composition of organized existence, though composed of elements as old as creation, by being brought into this new relation, has the power, under the guidance of its "*vis essentialis*," of so acting upon certain kinds of matter as to reproduce itself indefinitely, as well as the faculty of effecting definite cycles of change in form and composition, in which the type as well as certain characteristics are reproduced.

Professor Goodsir says, "The entire organism is formed first, not by the simultaneous formation of its parts, but by successive development of these from one centre, this being the original source of all centres with which the part is ultimately supplied," and this series of successive phases through which every part of the living body passes, indicates an inherent capacity for

growth, which gives rise, primarily, to the demand for nutrition, which is but a continuous molecular process, whether in the zoophyte, one of the lowest forms of organized existence, or in the more complex structure of man.

Eminent microscopists describe the cell as composed of a nucleus—which is the “germinal matter” of Beale, the “sarcode” of Dujardin, or the “protoplasm” of Max Schultze—which is centrally located, and upon which its origin, as well as its existence depends; and the outer substance which Beale describes as “having passed through the germinal and vitalizing stage, takes its place as ‘formed matter’ outside of the nucleus.”

To quote from the latter, in describing growth of tissue, he says, “Pabulum becomes germinal matter, while germinal matter is converted into new formed material, which is added to that which already existed, and unless condensation, drying, or shrinking occurs to compensate for the addition, increase of bulk and growth of tissue must take place.”

The organism is composed of a variety of tissues, presenting great diversity of character, and it is the definite function of each molecule to select, assimilate and build up out of the material held in solution by the serum of the blood, which also forms the medium of its conveyance to the tissues, those constituents which furnish the special pabulum for the development and reparation of the several parts, and by that inscrutable “chemico-vital” process, transforming it into living tissue.

In the development of animal life two forms of substances are required, viz.: organic and inorganic, both being found in due amount in all ordinary forms of diet, the relative value of different substances as food being measured by their tissue-forming and heat-producing qualities, the amount of albumen which they contain, determining their histogenetic value, and the hydrocarbonaceous matter determining their value as heat-producers.

Albumen is found in abundance in both the animal and vegetable kingdoms, and aside from its histogenetic value, possesses remarkable properties which render it indispensable to the animal economy. Readily soluble in water, it possesses not only the property of preserving the fluidity of the blood and facilitating its passage through the capillaries, but also that of so combining with the nutritive material taken into the circulation as to blend its various elements into a homogenous mass, upon which the

“elective affinities” of the various tissues may exert their force, selecting and appropriating that which they may require without interfering with the remaining constituents.

The degree to which albumen is capable of so affecting the chemical relations of substances in the blood as to prevent the formation of new compounds, which otherwise might result from digestive decomposition, except that which occurs through “chemico-vital” action in the tissues, is remarkable.

Carpenter states, that “such is its influence that lactate of iron mixed with the blood, is so thoroughly disguised that cyanide of potassium fails to produce the Prussian blue until after the albumen has been destroyed by the action of an acid. This property appears all the more striking when, according to a proximate analysis of blood, given by Simon, its complicated nature is shown by its including forty-two different constituents, three only being elemental and the remainder each representing a compound.

According to the best authorities, this substance is found to be a constituent of all serous fluids; and Paget says, “mucous secretions consist of epithelium cells and mucous corpuscles, the latter of which are greatly increased by *irritation* of the mucous brane accompanied by an *excess* of albumen;” and according to Carpenter, when found in the secretions is abnormal and is an evidence of some derangement.

As to the influence of the decomposition of this substance, in the occurrence of decay of the teeth, when found in connection with the saliva, mucous secretions, and serous exudations from diseased gums, slight reference will be had farther on.

In the numerous analyses of bone, tooth, ligament, brain, spinal cord, muscle, etc., by many investigators, so uniformly is the presence of certain inorganic substances found as to compel their recognition as essentially histogenetic in their character, the phosphate and carbonate of lime being ever present, in varying proportion, according to the character of the tissue. The carbonate, according to M. Edwards, existing, however, for the most part “only as a product of the decomposition of the phosphate, brought on by the fluids of the organism during chemical combination of the *basic* phosphate of lime and gelatine which forms bone.”

Lehman regards the phosphate of lime as by far the most

important of all the mineral substances "which are of service to the animal body by their 'physical properties.'"

Simon, in his estimate of its importance to the animal organism, terms it next to water, and gives the proportions of lime and phosphoric acid as 52 to 48.

Chosat, by restricting animals to food containing little or no phosphate of lime, succeeded in producing artificial softening of the bones, affording not only evidence of its histogenetic importance, but establishing the fact that, in the process of cell disintegration, the lime salts are removed, and when not renewed present the above result, bone nutrition being completely interstitial, disintegration like assimilation, being effected throughout its substance.

According to Simon, in most pathological conditions, the quantity of lime salts excreted, decreases, yet, in an analysis of the urine of a child, given by Berzelius, who was being treated for rachitis, of 38 parts of solid residue out of 1000, 18 parts were fixed salts and earthy phosphates, and he adds, "on calculating the ratio of these constituents to 100 parts of solid residue, and comparing them with those that occur in the healthy secretion, we find the quantity of urea has decreased, while that of the salts has increased, especially the phosphate of lime," showing not only a failure of the tissues to assimilate what was ingested in the food, but also an interstitial waste in excess of that occurring in health.

An analysis of healthy urine, by Simon, showed 16 parts of fixed salts, and $1\frac{1}{2}$ of earthy phosphates to 100 of solid residue; and another by Lehman, $1\frac{1}{2}$ of phosphate of lime and magnesia, and about the same proportion of other constituents as given by the former.

In a report the Academy of Science, *Donné* stated that the urine during pregnancy, contained a decreased amount of phosphate and sulphate of lime, which was not confirmed by *Becquerel*. *Simon* and *Wilthaus* also give a number of analyses, in which but little variation occurs from that of ordinary healthy urine, while it is a well known fact that fractures occurring during pregnancy, unite slowly and occasionally not at all, which would indicate a deficiency of this substance.

From these observations it may be fairly concluded that, under all ordinary conditions of health, there is a continual waste

of this substance from the tissues, the result of molecular death and disintegration, and this being true under the condition referred to, as well as during that of growth and development, when the demand for the phosphate of lime is especially great, and notwithstanding the statement of writers that the lime product of broken down tissue, even that of the roots of the deciduous teeth, is reappropriated. By the elimination of this salt during the time of its greatest requirement in the system, it would seem to have lost some essential principle during its residence in the tissues which render it unfit for reappropriation.

The saline compounds in the urine, according to Carpenter, "are to be regarded as proceeding from the retrograde metamorphosis of the materials of the tissues after they have served their purpose in the economy, and partly from the components of food which was not organized, the small amount of carbonate of lime taken into the system with food, being eliminated almost entirely in the form of the phosphate."

The saturating capacity of phosphoric acid renders it peculiarly adaptable to the metamorphosis of tissue, as upon the authority of Lehman, it can combine with one, two, or three atoms of base, the latter being a neutral phosphate.

Wilthaus also describes the phosphate of lime as existing under three combinations, the monocalcic, the dicalcic, and tricalcic phosphates, the first two being acid, and the tricalcic being neutral or bone phosphate, and having a remarkable "yielding property" to the weakest acids, even in its organized state, well accounts for the readiness with which the lime salts are dissolved out of the osseous tissues interstitially, or by the action of external agents.

Lehman sustains the conclusions of numerous observers, in the statement that "the phosphate of lime is formed within the animal organism, from its proximal constituents in the tissues, the alkaline phosphates introduced by grain, flour, beans, peas, etc., being decomposed by the action of sulphuric, lactic, hippuric, uric, and other acids which result from decomposition within the animal body, so that the liberated phosphoric acid must combine with the lime taken into the body with vegetable food, forming the phosphate of lime found in the various tissues.

The process of the formation of this salt within the animal tissues, can be almost directly observed in the development of the

chick in the egg; and it was Prout who first called attention to the constancy with which the phosphoric acid is maintained, while that of the lime is greatly augmented, the carbonate being transferred from the shell, its most proximate source, the phosphoric acid combining during incubation—the shell decreasing greatly in weight—to form the phosphate of lime found in the bones, claws, feathers, etc.

The therapeutic influence of the various phosphatic compounds in certain pathological conditions, and the estimates placed upon their value by eminent physicians, is quite variable.

Dr. J. F. Churchill, in 1848, suggested the theory that the immediate cause of tuberculosis was a lack of the phosphates in the system, and he prescribed the hypophosphites, as being more soluble, in numerous cases with advantage.

Beucke regards the phosphate of lime as useful in commencing tuberculosis, and a number of other diseases, but found it of no service in caries of the bones in adults.

Dr. Colton, in the London hospital for consumptives, found it of no avail; and, after a three years test, concluded that it exerts no specific action, and even when useful, found it inferior to other remedies.

M. DeChambre, of Paris, renders a similar verdict.

Mr. Taylor, of Liverpool, claimed for its action in work-house patients, especially in exhaustion from prolonged lactation, dentition in strumous children, and some other diseases, great advantage.

Whatever may be its specific value in certain pathological conditions, the influence exerted by the general stimulant effect accorded it by Stille and others, especially upon the nervous, muscular and circulatory systems, is of undoubted value, its almost universal presence in the tissues facilitating, by the law of chemical affinity, its therapeutic influence.

The dentinal tubuli, opening into the pulp chamber, and radiating throughout the entire substance of the dentine, furnish a most admirable system of conduit for the conveyance of nutritive matter, and that such movement of nutrient fluid actually occurs, reference is made to the well-known gradual tinging of the teeth of animals from feeding madder.

The inter-tubular tissue, when highly magnified, is seen to be made up of minute granules closely united together through the medium of the organic constituents of the dentine; and it was

Kolliker, if we are not mistaken, who first called attention to what he termed "inter-globular spaces," which he regarded as sustaining the same relation to the dentine, that the lacunæ do to the nutrition of bone. The tubuli he describes as opening into these spaces.

Tomes describes them as "open, irregular spaces, frequently long and wide, and crossing a number of the tubuli, being most frequently found in teeth lost early in life, notably the first permanent molars, and filled with a cartilaginous substance analogous to the basis substance in which dentine is formed," but owing to some defect in the assimilative process, has failed to undergo calcification.

Prof. McQuillen, in 1866, was first to call attention to the fact that the "inter-globular spaces" were not cavities, like bone lacunæ, being entirely dissimilar, and not distributed with the regularity which characterize the latter, being found in great numbers throughout the dentine, and proving that no such function is assigned them as was supposed by Owen and Tomes, and that instead of the tubuli terminating in these spaces, they continue their course directly through them.

The "contour lines" described by Owen, passing over the coronal portion of the tooth, as well as found in the root, are, according to Prof. McQuillen, identical with the "inter-globular spaces," subsequent calcification or filling up having taken place, the appearance under the microscope, leaving no doubt as to the secondary character of the deposit.

In the molecular changes occurring in the osseous system through the "physical properties" of the lime phosphates and carbonates, is furnished a clear illustration of the process of assimilation and disassimilation, as indicated in the formation of the frontal, and sphenoidal sinuses in children, absorption of the roots of the deciduous teeth, calcification of the "inter-globular spaces," filling up of the pulp chambers, increased density of the teeth, and thinning of the cranial bones in old age.

"The more active the normal nutrition of any tissue the more speedily does its molecular death follow the withdrawal of the conditions upon which its vital actions depend."—CARPENTER.

In the application of the converse of this statement to the dental tissues, certain physical phenomena are manifested synonymously with any interference with their normal nutrition, which,

acting externally and in concert with the interstitial disintegration, results in the rapid breaking down of the teeth, the external influence being due, *indirectly*, to the vitiated condition of the oral secretions—farther facilitated by the structural defects or peculiarities referred to—and induced by nervous depression, the result of disease or exhaustion of vital force.

Bearing in mind the reference made to the importance, histogenetically, of a due supply of the inorganic constituents, more especially the phosphate of lime, the circumstances of a constitutional character, under which these conditions are commonly met, and in which the demand for this substance is peculiarly great, are during the periods of gestation, also that of puberty, or at the age of from 12 to 18 in both sexes, in which rapid growth and development, together with the constitutional changes peculiar to this time, create a demand upon the vital powers, which, if not met, must result more or less disastrously to these important organs the teeth.

The pre-existing structural defects, the result of malassimilation, as exhibited in the formation of the inter-globular spaces, as well as the more externally manifested regions or transversely grooved and fitted condition, which Bourdet, as long ago as 1757, attributed to defective nutrition, the result of disease peculiar to childhood as: measles, scarlatina, rachitis, scorbutis, variola, etc., all predispose to decay from the action of even slight external agents.

If it be conceded that one of the conditions of the normal nutrition, the maintenance of the form, size, and composition of all organic bodies, is a due supply of food containing the elements upon which the vital forces may expend their energies, in the preservation of the harmony and integrity of the whole, of no less importance is the fact, that the animal economy will appropriate no greater amount than the vital principle which stimulates the organ will allow.

In the application of this truth it may be stated, also, that the relation existing between the nutritive functions and the various organs, bears a direct relation to the nervous organization of the individual, and that in the scale of excellence, nothing higher can be evolved, than is represented by the degree of nervous force in the animal system in which they are organized.

Hence, it may readily be seen that the diet may contain all

the elements for the most perfect nutrition of every part, and yet interstitial decay may not be compensated; for by lack of power to assimilate, some persons thrive upon a barely sufficient and frugal diet, while others are reduced and become emaciated, although taking an abundance of nutritious food.

Living upon the same diet and under the same hygienic influences, members of the same family present, in the structural character of the teeth, differences, which can be accounted for upon no other hypothesis; and that special organs should exhibit this tendency to decay, furnishes a pathological enigma difficult of solution; and in it we are compelled to recognize the impress of a pre-existing, pre-determining cause in which there is not merely an admixture of the "normal characteristics" in the offspring, but also the hereditary transmission of "perverted functional" activity which may have been peculiar to either or both the parents.

In the millions of cells which compose the tissues of the body, is located nature's great laboratory, in which, by her own immutable laws she adopts her own plans, her own time, and her own means of vitality, and no medication, no artificial nutrition, can control or change them.

Temporary advantage only may be gained by forcing her; and of this we may safely avail ourselves, when in harmony with her laws we intelligently supply the means through and upon which she may exert her forces, ever remembering that all her energies in "the aggregate of the functions which resist death," are silently, yet unceasingly, being exerted in the effort to maintain the harmony and integrity of every part.

And, as in the cell exist the "ultimate elements of organization," any functional disturbance must decrease the demand for the histogenetic elements; and whatever is in excess of this demand, either ingested with food, or administered therapeutically, can only result in harm, nature effecting its removal by purgative action or otherwise.

Liebig says, "A certain amount of salts is absolutely necessary to constitute normal blood; and the physical conditions of the tissues oppose an obstacle to any increase or decrease of the amount of salts, and thus it cannot become richer or poorer in salts beyond a certain limit; and fluids containing a larger amount of salts than the blood, remain unabsorbed and leave the organ-

ism through the rectum ; and fluids containing a smaller amount than the blood enter the circulation, and are eliminated through the urinary channel, so that finally only those substances remain which exist in chemical combination with the constituents of the blood." *The richness of the blood in these elements, is controlled by the active demand existing in the tissues.*

If the foregoing observations be based upon correct physiological principles, the utter futility, not to say absurdity, of any attempt to supply the indicated want by medication, is apparent, when it is safe to say that, except in exceedingly rare instances, there is a sufficient quantity of the lime salts in ordinary quantity and quality of daily food to subserve all the requirements of the nutrition of the body, but which, for want of vital force, the result of disease or some functional peculiarity, hereditary or acquired, there is a failure to assimilate.

In a large percentage of the cases coming under the notice of the dentist, the attempt to preserve those important organs, the teeth, by purely local and mechanical means, when the conditions upon which their very existence depends, remain imperfect, cannot but result more or less disastrously, either in their utter loss, or marred appearance and usefulness. The great benefit claimed from the use of the phosphates is, without doubt, due mainly to their general stimulant effect upon the nervous, muscular and circulatory systems, to which reference has been made ; and doubtless in the phosphatic preparations we possess an agent of great therapeutic value ; yet its indiscriminate use, even in cases where it seems to be indicated, especially when exhibited for the specific purpose of supplying the tissues with the phosphate of lime, is not only questionable practice, but not unattended with danger. In a work on medical chemistry, by R. M. Wilt-haus, published in 1881, he says, in speaking of the uses of this substance : " It is not improbable that recently introduced medicinal preparations containing phosphorus, may produce fatal poisoning in the future."

A consideration of no less importance, in the treatment of these cases, is the influence of a due amount of exercise, as well as fresh air ; for, according to the observations of Berzelius, subsequently confirmed by Liebig, the presence of free lactic acid in the tissues is in proportion to the *extent to which they have been exercised* ; and so great is the quantity, that the latter expressed

the opinion that "it is more than sufficient to saturate all the alkaline fluids of the body."

The hygienic influence of exercise in developing this acid, considered in connection with the almost universal presence of the phosphate of lime in the tissues, and its solvent effect upon this substance, by obtaining for it a larger solution by decomposing it and liberating the phosphoric, whereby new combinations are possible, thus bring into direct relation with the tissues this important element of their nutrition, with their specifically stimulant effect, to which reference has been made, can scarcely be overestimated.

And in order that the various substances concerned in the nutrition of the body, requiring oxidation, be thoroughly effected—phosphorus being neither appropriated, nor eliminated until after having undergone thorough oxidation—the importance of an abundance of pure air, more constant and free than the sunshine, should be impressed upon the minds of our patients, and as far as our influence may extend, the thorough ventilation of school-rooms and dwellings, should be insisted upon; and so thoroughly should we be imbued with the true spirit of professional progress, so alive to the interests of our patients, freely diffusing the light of which we may be possessed, that, like bread cast upon the waters, it may return to us in that recognition of our counsel, which is accorded to the medical profession.

And believing that we are entering upon the dawn of the day, in which under clearer light, the local and mechanical, in the science of conservative dentistry, shall occupy their true positions only as valuable and indispensable adjuncts, and when, as an educated profession, the intelligence and skill displayed in our specialty, shall *command* the respect of the world, then, and not until then, may we hope for, nay deserve that recognition as members of the great healing art so earnestly coveted.

In conclusion, believing that in a careful consideration of the subject matter of this paper, however imperfectly brought out, there will be recognized many of the conditions and circumstances favoring the "chemical theory" of decay, but lacking the ability, as well as the limits of this paper—already too long—forbidding its discussion, I may be pardoned for presenting a few authoritative facts, or statements, which in connection with the foregoing, will be readily recognized, by those who have given this subject any thought, as bearing directly upon it.

The case cited by Prof. Spalding, in an article published in the *STATE JOURNAL*, March, 1882, is just to the point, of a girl aged 12, teeth decaying rapidly, neither gold nor other fillings, notwithstanding, thorough cleanliness, remaining any length of time, the saliva unexpectedly showing an *alkaline* reaction, other similar cases showing a like condition of the secretions of the mouth.

Dr. Watt, in the October, 1884, number of the *STATE JOURNAL*, says: "It is possible for the lungs to give off ammonia in cases of uremia, but find it in no *other* condition of the system."*

Marchand was the first to discover to a certainty, the presence of ammonia in the exhalations.

"In the pulmonary exhalations, small quantities of ammonia may always be recognized."—LEHMAN.

"Ammonia may always be found in the exhalations, and is sometimes increased by caries of the teeth, logwood paper being the best test of its presence, showing it when diluted 64 million times."—REULING.

"On the disintegration of nervous and muscular tissue, the albuminous constituents resolve themselves into two classes of compounds, one rich in carbon, and the other nitrogen, yielding by decomposition carbonic acid and ammonia respectively."—CARPENTER.

"Nitrogenous histogenetic substances may be classified into albuminous and gelatinous substances, which undergo putrefaction when exposed to the atmosphere, and in the presence of water, *carbonate*, and *sulphide of ammonia* always being among the products of this decomposition."—LEHMAN.

"Almost all histogenetic substances develop ammonia when treated with dilute acids or alkalies."—LEHMAN.

"Azotized organic matters, exposed to the air in contact with salifiable bases and water, yield salts and nitric acid, the base may even be ammonia."—GISELIN, from October No. of *STATE JOURNAL*.

"In affections involving the nervous system, the saliva is never acid but often strongly alkaline."—LEHMAN.

"Mucous secretions are greatly increased in quantity by irritation of the mucous membrane and accompanied by an excess of albumen."—PAGET.

* It is Dr. Talbot who says this. —ED. JOURNAL.

"Exudations from wounds and irritated surfaces do not differ in their constituents from those of the liquor sanguinis."—PAGET.

"Chloride of sodium introduced into the system, partially undergoes decomposition, whereby hydrochloric acid is produced."—CARPENTER.

"Hydrochloric acid does not, like lactic acid, decompose the phosphate of lime, but dissolves it out. This is one of the free acids frequently found in the saliva in its abnormal conditions and is also an ingredient of gastric juice."—WATT.

FOOD—ANIMAL AND VEGETABLE.

BY E. J. LILLY, M.D., D.D.S., CIRCLEVILLE, O.

[Read before the Ohio State Dental Society.]

A FOOD, according to the usual definition, is a substance which, when introduced into the body, supplies material to renew some structure, or maintain some vital process. And most people show, in every-day conversation, that they consider the main object of food to be the replacement of the *materials* of the organism, while, in fact, its real object is the renewal of the *energies* which have been dissipated in automatic and voluntary activities, or in other words, work. A man, like a steam engine, cannot produce motion or give out energy, without his appropriate fuel, and if the fuel is not supplied the fire goes out and the man dies.

Food stuffs and coal agree essentially in the chief characteristics of their chemical composition. Both consist mainly of hydrogen and carbon, and both possess energy in virtue of the fact that their affinities for oxygen are not satisfied. Water contains hydrogen, and carbonic acid contains carbon; but we can get no energy out of these, because in them the oxygen has already united with the atoms for which it had affinity, and the separation necessary for dormant energy has ceased to exist. But in bread, potatoes, meat, or coal, the hydrogen and carbon are ready to unite with their equivalent of oxygen whenever the chance presents. All alike obtained their energy in the same way. The rays of sunlight falling upon their original trees or plants, separated the oxygen from the water, and carbonic acid

gas in the air, and built up the hydrocarbons in their tissues. The force thus stored up remains dormant until an opportunity occurs to reunite with oxygen, when it will once more assume the active shape, producing mental, physical, and mechanical energy, as needed. The only serious difference between food and coal is that foods contain another element, nitrogen, as well as hydrogen and carbon, and this nitrogen is absolutely necessary, if the animal is to continue to live.

Foods are derived from earth, water, and air, and may be solid, liquid, or gaseous, organic and inorganic. The popular notion of food as solid substances derived from animals and vegetables, while comprehensive, is too exclusive, since the water we drink, the air we breathe, and certain mineral substances found in the earth, are of no less importance as foods. It is understood that the structures of the body are in a state of continual change, so that atoms and molecules which are present at one hour may be gone the next; and when thus used up by work, the tissues will be so far wasted, unless the process of waste be accompanied by renewal. This is brought about by the ingestion of such materials as, by vital activity, may be transformed into tissue.

Vegetable food contains, as its essential nutritive elements, albuminates or nitrogenous compounds, fatty matter, and hydrates of carbon, with water and nutritive salts. Such food, therefore, contains the same elements as that derived from animals; but in point of digestibility the two differ widely, meat being very much more easily digested than vegetable food. What renders the latter harder to digest is the fact that the albuminoid substances, fatty matters, and starch are there incased in a coating of cellulose, to break up which requires some time. Starch, before it can be absorbed, must first be changed into sugar, which process may occur in the mouth, if the food be chewed long enough, or in the intestines, when it comes in contact with the pancreatic and intestinal juices.

Of all the influences which determine the life of the individual, and on which his weal and woe depend, undoubtedly the nature of his food is one of the weightiest. Every one has for himself experienced how not only the strength of his muscles, but also the course of his thought and whole mental tone are affected by the nature of his food, whether it be strong and wholesome, or otherwise. Every nation has its peculiar way of

cooking; but the Yankee mode of spoiling eggs, and concocting rank and indigestible dishes, delusive to the eye, deceptive to the palate, and a deadly snare to the digestive organs, is purely American. The stomach may not be the seat of the soul, but the road to the heart and soul, and the health of the brain, lies through it; and, indeed, it is said that "a man's heart and stomach are interchangeable terms."

Foods have been classed into different groups, according to the influence they have on the body, in virtue of their essential constituents. And though the classification, like every artificial arrangement in nature, is only approximately correct, still it gives some ground to stand on. Blood-formers, or albuminates, are those albuminous materials which constitute the nutritive elements of the blood, and enter into the composition of the ligaments, bones and muscles, on which the exertion of force specially depends. The heat-producers, or respiratory foods, are those rich in carbon: these specially serve to support, with the aid of inspired oxygen, the process of combustion so necessary for the purposes of the organism. Finally, there is a third group of substances—the nutritive salts—which are of an inorganic nature, and which, after the combustion of the food remain in the shape of ash. All these food materials are essential, since with them the organism is built up. Life is an unceasing process of waste and repair, and the food must make good the loss the tissues suffer every instant. Even those substances which are contained in the living body only in small quantities must be supplied, for on these depends the activity of important organs. Such substances are common salt, magnesia, lime, phosphorus, iron, and others less common. But none of these groups is, by itself, sufficient for nutrition. They must all be combined. Blood-formers, heat-producers, or nutritive salts are not separately foods, but only factors of food; each as indispensable to the organic processes as air and water, but each incapable by itself of supporting life. One cannot live on albumen alone, or fat alone. Without the phosphate* and other salts of lime neither bone nor tooth substance would be formed, no matter how much pure albumen we ate; on the other hand, without albumen no muscular tissue would be made, though we were to gorge ourselves with sugar

*Not even the primary cells, without the phosphate.—ED. JOURNAL.

and salt. Finally, without fat, no brain. But we, properly enough, give the name of food to milk, meat, and bread, for in them all the three conditions are present, but in different proportions; and, in order to obtain them in certain definite quantities, mixed foods must be used. Now, in nature they are not distributed in any such definite proportions,—there the greatest diversity is found. One food stuff consists principally of blood-formers; another of heat-producers; this one contains only one of the nutritive salts, that one another. However, we must not subsist on a too mixed diet; for if one swallows without thinking, and often without knowing, incompatible and warring articles of food or refreshment at the same meal, he turns his stomach into a sort of chemical laboratory, or fermenting tank. Such experiments are sure to make disturbance and various internal commotions, disagreeable and perilous in their very nature. It should need no chemical analysis to tell us this, experience is enough.

There are some who make wheaten food, and not beef, the basis of alimentation. Wheat and the allied sub-foods, including beans, lentils, peas and rice, taking the place of animal foods, including, besides fleshmeats, butter, cheese, eggs and milk. Sound, ripe wheat, deprived of its outer silicious husk, coarsely ground and mixed with water, and subjected to just that degree of kneading and baking which will suffice to prepare it for mastication and the subsequent processes, is a substance that must be chewed, as it cannot be swallowed without due mastication and insalivation, and consequently its digestion is assured. Wheat, coarsely ground and unbolted, contains all the natural nutritive elements of the grain. The salts of lime, in unbolted flour, are instrumental in the production of firm, strong bones and teeth. If this is excluded the bread is no better in any way. It is estimated that every child consumes one half barrel of flour every year. If this is true, and it is fed on fine white flour, it is yearly deprived of about twenty pounds of the elements that ought to be taken into the system to make solid bones and teeth. Besides, this coarsely ground grain possesses the mechanical properties which distend the intestines, promoting their peristaltic action. It is, therefore, anti-dotal to dyspepsia. For children it is specially valuable, and its substitution for common bread, with the use of fruits instead of flesh, until the deciduous teeth shall have given place to the permanent denture, would be of incalculable

value and benefit, and would contribute not a little to the formation of perfect teeth. This process of feeding might be kept up throughout childhood, and even adult life, for, as stated above, in vegetables we have foods closely analagous to the flesh of animals. Thus, in addition to the water and salts, common to both, there is vegetable jelly, vegetable albumen, vegetable fibrine and caseine, all having a composition almost identical with animal albumen, gelatine, chondrine and caseine. Such vegetable foods as contain albumen, when taken with those containing much starch, notably aid in the digestion of the latter. And still, taking an equal quantity of vegetable albumen and animal albumen, twice as much of the latter will be absorbed. This difference in absorption makes the essential difference between the two kinds of food. Bread, rice, potatoes, maize, taken in any quantity whatsoever, can scarcely support the life of any man or carnivorous animal, communicating to them no bodily strength. Too large a proportion of their nutritive elements is eliminated in the excretion. Yet, with the addition of a small quantity of albumen, they may suffice, and this can be obtained in no better or easier manner than by taking some meat food. Of course one may sustain life on purely and distinctively vegetable fare. The vegetable eater, pure and simple, can extract from his food all the principles necessary for life and its activities, provided he selects vegetables which contain these elements. But he must consume the best cereals, wheat or oats, or the legumes, peas, beans, or lentils, or else he must swallow and digest a large weight of vegetable matter of less nutritive value, and therefore, containing one element in great excess, in order to obtain what he needs. All this waste of digestive energy could be saved by the judicious admixture of animal and vegetable materials. So the question as to whether man is designed to be a vegetable feeder, a flesh eater, or an omnivorous animal, seems to favor the latter supposition. His teeth show that he is and has been omnivorous, to the extent of his means. And as man is physiologically constituted so as to be able to derive all that is necessary to the healthy performance of his functions from the animal or from the vegetable kingdom, either singly or combined, he can scarcely be regarded otherwise than as qualified to be omnivorous. Add to this his possession of an intelligence and which enables him to obtain food of all kinds from all climes, to investigate its qualities and render

it more fit for digestion, by the use of heat and of condiments—powers which no other animal possesses—and there appears no *a priori* reason for limiting his diet to the products of either kingdom exclusively. Everyone likes to find his food agreeably flavored, and we have it prepared in such a way as to acquire the peculiar flavor that pleases us. For the same reason we like a variety in food. In time the persistent impression of one flavor produces disgust, just as the continued use of one article of food will cause a dislike for it, after awhile, and so what was once savory now becomes unpleasant.

A man who is chopping wood, in an atmosphere at zero, and he who uses only his brain, in a room at seventy degrees, consume very different elements in very different proportions, and, therefore require very different elements of food. In the tropics, of course, the most wholesome and agreeable diet is vegetable in its nature; in temperate regions this is supplemented by milk, (butter and cheese), poultry, fish and different meats; while in colder regions, vegetable products are hardly to be obtained, and flesh and fat are indispensable. Thus it appears that *man* is clearly omnivorous, while *men* may advantageously be vegetarian in one climate, mixed feeders in another, and exclusively flesh-eaters in a third. For all who are occupied with severe and continuous mechanical labor, a mixed diet, of which cereals and legumes form a large portion, and meat, fish, eggs and milk a moderate proportion, is more nutritious than chiefly animal food. For those whose labor is mental, and whose muscular exercise is inconsiderable, still less of concentrated nitrogenous food is desirable. A liberal supply of cereals and legumes, with fish and flesh in their lighter forms, will better sustain such activity than large portions of butcher's meat, two or three times a day. But after all, the old saying that "We live, not by what we eat, but by what we digest," is true; and what one man may readily digest another will die of attempting.

TO PREVENT FELONS.—As soon as the disease is felt, put directly over the spot a fly blister, about the size of your thumb nail, and let it remain for six hours, at the expiration of which time, directly under the surface of the blister, may be seen the felon, which can be instantly taken out with the point of a needle or lancet.

IMPROVEMENT OF ARTIFICIAL DENTURES.

BY J. TAFT.

[Read before the Ohio State Dental Society.]

IN the insertion of artificial teeth, the object should be to restore, as far as possible, that which the loss of natural teeth has occasioned. Every one who has given attention to the subject knows the various purposes served by the natural teeth. Notwithstanding, the following is presented as a summary of the functions of these important organs :

First. The teeth maintain the form, symmetry, and beauty of the face, and of the mouth in particular.

Second. They aid in giving expression to the face, in every variety of presentment. The various mental conditions and modes, are usually clearly set forth upon the face, and this is especially true of the emotions, and the stronger operations of the mind.

Third. The teeth are organs of speech, controlling the voice and making good enunciation possible.

Fourth. They facilitate the use of the soft parts, and serve to retain them in proper position and relation.

Fifth. Mastication. Upon this function of the teeth is dependent, in a large measure, the welfare of the whole system. Especially is this true in reference to man, and indeed it may be said to be so of nearly all vertebrate animals. In mastication, the teeth serve for holding, tearing, cutting and grinding.

These five particulars embrace the more important uses of the human teeth. They serve in some animals other purposes than these, to which we need not now refer.

The loss of the teeth involves the impairment of all these functions, and the entire destruction of some of them. The preparation and insertion of artificial substitutes should have for its object, the restoration of those functions, to the highest degree possible. This will often fall far short of full restoration even after the best that art affords has been done. In some cases, and in some particulars, this repair may be well nigh complete, while in others, total failure has been realized. How often is it that artificial teeth serve quite well the purpose of mastication, while in appearance and expression of speech, or both, very imperfect

results are attained, sometimes making the case even worse than it was when wholly edentulous. The experience of every dentist will illustrate this subject without further delineation. That the present practice of the profession does not meet all, nor even the larger portion of the requirements, is patent. Various circumstances contribute to this; the materials that have been so extensively, we might say, universally used for the last twenty-five years, have served very definitely to demoralize this branch of practice, and render far less perfect and efficient, artificial substitutes, than was aimed at prior to that time. The introduction of rubber, celluloid, and fusible metals for artificial dentures, wrought much mischief to the higher art, of this part of our profession. It rendered it so easy and simple, to prepare a plate and place upon it artificial teeth, that the artistic features of the work were almost wholly overlooked. As artificial dentures were so easily produced, the expense attending their production was greatly reduced, so much so as to preclude the expenditure of much time and skill in securing the best results. Too often, the only point aimed at, has been to insert something having the resemblance to teeth, with but little if any reference to their adaptability to the case, so that now, in the matter of appearance, almost every one who uses artificial teeth, shows clearly at first glance, that fact. This is many times shown when the mouth is closed, by the want of symmetry in the features of the face, the form, from the natural type, being so much changed by the loss of the teeth, and no effort made at restoration by the insertion of artificial teeth, that the defect is obvious to the most casual observer. Add to this the incongruous appearance of the teeth when the mouth is opened, and the case becomes repulsive to every one who has a just appreciation in this direction. Teeth faulty in color, in form, in size, and in arrangement, render the face but little more tolerable than without teeth altogether. It is true that in the use of all the materials mentioned, artistic work, well nigh perfect in all particulars, is possible, but not by the methods generally adopted. It is true also, that in all dentures of the more difficult production, imperfect work may be done, but this style of work requires far more skill, time and patience for its production, in such form that it can be used at all, that all the particulars of the process are likely to receive more attention than in the more hastily produced kinds of work. There is a strong probability that ninety-

five per cent. of all the artificial dentures made in the profession, is of the imperfect sort just described.

The great, crying demand, then, in this matter of artificial teeth, is, to improve all the methods we have, rather than to seek for some new device. New things come along in regular order of development faster than we can utilize them, and they have in some instances been a disadvantage in that the attention has been diverted by them from modes and methods whose value has been fully established by long usage. It is an almost universal fault, that we are more anxious to discover and learn new things, than to improve and perfect those that we have. I have but little to say in respect to particular modes of work, but I am fully impressed with the fact that a return to some of the former methods of producing artificial substitutes, is an end to be greatly desired. Perhaps not more than one in ten of the profession in this State, is prepared or has the ability to construct artificial dentures upon gold, contanous gum, or porcelain. The profession, in the aggregate, would certainly make a great gain were all the members, or even a large proportion of them able to use well, all the various methods of inserting artificial teeth, so that the selection might be made, best adapted to each and every case presented. No two cases require exactly the same method of procedure. Not much that is really new has been presented to the profession for many years. No new principles have been proposed, yet modes of applying and adapting, have been introduced and pressed upon the attention of the profession, that ought to be well considered and tested, before general adoption. I refer now more particularly to that style of work known as "bridge work," in which the teeth are placed upon a band or bar of gold or other material that stretches across spaces of greater or less extent, where teeth have been removed altogether; or attachments made to sound teeth, or to the roots of teeth that have been decayed, the crowns of which have been removed. In these dentures, no plate rests upon the gum, the entire support and attachment of the denture being obtained from and made to the natural teeth or roots, these attachments generally embracing a large portion of, and in many cases, the entire crown of the tooth or those of several teeth. These attachments are usually made with a view to remain permanently, which is a method of exceedingly doubtful propriety. In some cases which have come under my notice, teeth that were

perfect before the operation, have been cut and otherwise injured, so as to greatly facilitate decay. The drilling, grooving and slotting in sound teeth, for the purpose of receiving such fixtures, can hardly be too strongly condemned; and even when this is not done, the application of caps or bands that fully cover the crown or crowns of teeth, will often occasion early decay. In some cases, the pressure and straining of such dentures upon sound teeth, produce periosteal disturbance, that results in a chronic inflammatory condition, and sometimes in alveolar abscesses. This method of inserting teeth, will certainly require much modification before it can receive the unqualified approbation of the more intelligent of the profession.

A very great stride has been made in the last few years, in the attachment of artificial teeth to the roots of teeth. Various methods have been developed to a very great degree of efficiency; and most of these are well worth attention and employment.

It would be difficult to find a good root of a tooth, upon which a useful and comfortable crown cannot be inserted by some of the various methods now before the profession. With these various methods, it is important that every member of the profession should become familiar, in order that the largest sphere of usefulness may be served by their application. In closing these remarks, I cannot, perhaps, do better than to emphasize the thought, that perfecting the modes and processes now in use, is far more important, than the discovery of new devices. Not that the latter should be discouraged, but that the former should receive the attention that it deserves.

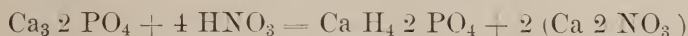
A SHORT CRITICISM.

BY DR. E. S. TALBOT.

WE have read Dr. Watt's "Discouraged" and "Chemistry?" in the October number of the OHIO STATE JOURNAL with interest; and in the criticism of our remarks at the Illinois State Dental Society, he presents his theory of the decay of the teeth by mineral acids very clearly. We take issue with him in some statements. If it were possible for the nitric acid to act upon the tooth structure, in the manner described, producing white decay,

how is it that white chalky decay is found upon the labial surface of the central and lateral incisors, the buccal surface of the molars, and the posterior and grinding surfaces of the wisdom teeth? This condition is especially noticeable in the Swedes of the lower classes, who eat little meat. The nitric acid which is formed from the decomposition of meat between the teeth, could not reach these cavities.

The Doctor takes exception to tooth structure being classed a neutral. Chemists call a salt composed of an equal number of equivalents of an acid and base neutral. So tooth structure, which is composed of phosphoric acid and calcium salts, in which neither is perceptive, is also neutral. If nitric acid act upon tooth structure, the bond of union must first be dissolved between phosphoric acid and calcium salts, before nitric acid can produce decay, thus:



Is it not reasonable that the nitric acid will take up with the free base (ammonia) rather than to go to so much trouble? Has the Doctor dissolved bone in nitric acid and then added ammonia? If he has, he has seen that the nitric acid goes directly to the ammonia, and the bone phosphate is deposited, which proves that the nitric acid has a stronger affinity for the ammonia than the bone substance. Again, Dr. Watt says, "However much of it (nitric acid) may combine with the ammonia, some of it must combine with the tooth substance." As the tooth is not an alkaline substance, will it be acted upon in preference to a free alkaline substance? Sulphuric acid has great affinity for water; and when brought in contact with it, would become so diluted as to have no effect upon tooth structure. It would be like a hungry man turning away from the food before him, and breaking open a safe to obtain money to buy bread. This question of decay of the teeth by nitric, sulphuric, and other mineral acids, hinges upon this one point: Whether these acids attack tooth substance, or other bases in the mouth, for which they have a greater affinity. We think they attack the alkaline substances.

Under the head of Chemistry, page 468, the Doctor finds a bone of contention in this statement: "It is a fact that arsenic taken into the stomach or applied to tissue, affects it only by its presence; and the tissue is affected only where it is applied by

overstimulation. It can only be absorbed when in a liquid state, and when the circulation of the pulp is normal." He mentions the case of the application of arsenic to the thigh of a frog, "and it was embalmed;" also the case where he applied arsenic to a piece of muscle, half an inch long, "and in due time it permeated the entire piece of muscle." Would Dr. Watt convey the idea that absorption, osmosis, or capillary attraction can take place without the arsenic being in a liquid state?

REMARKS ON THE ABOVE.—Let the last be first. On page 469 of our October number we quoted from Pereira as follows: "It is not at all unlikely that the arsenious acid may enter into new combinations while within the dead body, and in this way become diffused, probably in the gaseous state." That ought to be a sufficient answer to Dr. T.'s closing conundrum; but allow us to say that others think that the arsenious acid combines with the proteinaceous matters of the tissue, and that such combinations are very easily decomposed, and therefore a fresh portion of proteinaceous tissue separates the acid from that already combined with it, and that the progress of the acid through organic tissue is made, at least in part, by such a series of combinations and decompositions. At a rowing match in England, a hard named crew from Michigan won the offered prize. The papers, here and there, discussed the relative merits of the "Oxford stroke," the "Harvard stroke," etc.; but the *New York Tribune*, whose chief editor and principal proprietor we saw baptized when a babe, suggested that the Michigan boys had demonstrated that the "*git-thar*" stroke was the one to be relied on in racing. Theorists may dam and bar, by physiological and chemical aphorisms, as they will; but the arsenious acid, as is well recognized by practical men, has the "*git-thar*" faculty.

As to Doctor T.'s first question, he has named no place where ammonia may not be oxidized.

As to tooth structure being neutral, it is not common (or was not when we were teaching), to call subsalts neutral. Bone phosphate is a *subphosphate*, made purposely; for the neutral phosphate will not answer for bone making. Even neutral salts sometimes play the part of alkalies. Who has not heard of alkaline carbonates? Sometimes they neutralize an acid in a more desirable way than an alkaline base does.

But we are surprised at the Doctor's statement that "if nitric acid act upon tooth structure, the bond of union must first be dissolved between the phosphoric acid and calcium salts." Doesn't he mean from calcium bases? We thought every tyro knew that nitric, hydrochloric, and other acids combine directly with bone phosphate, and that it may be precipitated from its solutions in them unchanged. But Dr. T.'s thoughts have been more strongly led in other directions, hence this glaring mistake, such as we are liable to make in the line of his favorite studies, perhaps. His chemical equation, therefore, goes for nothing.

The next question we have already answered very often; but "line upon line," you know. An acid presented to several bases, or basic salts, with each of which it forms a soluble compound, *must* take part of each base. If the "hungry man" were obliged, by the laws of his nature, to break the safe, though food is before him, of course he would break it.

The affinity of sulphuric acid for water will not dilute it so as to prevent its action on the tooth. It is formed in contact with tooth substance and takes it simultaneously with its formation, even though water, or other bases may be present.

We have tried to give brief, yet satisfactory answers to the sentiments of Doctor T.; and we hope he will not slack up in his earnest investigations. We have no interest as to who is right, only that the truth prevail.

Unless there is a slip of the pen, Dr. T.'s remarks were intended for the November number, as he asks us to "please publish them in the November JOURNAL if possible;" but as his letter was dated Oct. 30th, and received the 31st, three weeks behind time, we take for granted he meant December.

TARDY.

BY DR. H. H. HARRISON, CADIZ, O.

MANY persons miss trains, gain for themselves poor credit and make an utter failure in life by being tardy. Just five minutes too late for the train, just five days late in paying a note in bank, just a little behind time in most of life's engagements, make up an aggregate of failures, bring trouble and disaster, and change what might have been success into adversity.

And so it was with a cuspid tooth that came under my care, it having delayed its coming for a little over thirty years, causing pain, anxiety, trouble and expense,—and all on account of tardiness.

The patient who possessed this unwelcome visitor is a gentleman of forty and four summers, he, having nearly all his teeth extracted, and had worn an artificial denture for twelve years, and had but recently gotten a new set. This right superior cuspid had never put in an appearance until at this late day, when its coming was heralded by swelling, pain and two sinuous openings upon the alveolar ridge, from which pus was discharged in considerable quantity. It advanced slowly and gave rise to considerable solicitude on the part of the physician and dentist in charge, until, by dressings and cleansings with disinfectants, the formation of pus ceased, and the labial surface of the stranger arrived in sight—lying horizontally along the alveolar ridge, its point toward the median line of the face, and apex of the root extending to a position a little back of the first bicuspid tooth.

At first appearance the pathological condition was readily calculated to create suspicion of necrosis; and indeed, in its first stage as seen by me, one might have made a diagnosis of malignancy, had it not been for a want of the constitutional and cachectic indications.

The time occupied in this development was about six months; and I am led to believe that the germ had lain in a dormant condition all these years, though it is possible that the tooth had been fully formed at the proper period, and remained deep in the body of the maxillary, until its recent eruption. However this may be, it is certainly an anomalous case, in that its eruption was delayed so very long.

Thus ends the chapter of this case, and we may theorize as to the cause of this strange freak of nature; but we shall never know the cause. But one thing is sure, that if its mission was for any good, it was severely taken in—by the forceps.

RUBBER CEMENT may be made by dissolving pure, fresh rubber in bi-sulphide of carbon. An article not quite so good may be prepared by using benzine instead of the bi-sulphide. These liquids are highly combustible and volatile. Their vapors form explosive mixtures with the air, so keep them away from a fire.

A NOVEL FILLING.

BY ALFRED H. TESTER, D.M.D., L.D.S., ENGLAND.

THE following case which occurred in my office some while since may be of interest to our readers :

N. B. (æt 27) called on me to have his mouth put in order. On examination I found the teeth remarkably good, with the exception of a few small crown cavities. In the first right inferior molar, I found, what appeared to me to be, a very good crown amalgam filling, and to all appearances it was very compact, the edges being neatly trimmed and smooth. The patient expressed regret at not having paid proper attention to his teeth, and stated that he had not been to a dentist before. I replied, that I thought he must have made a mistake, as I could show him one very good filling in his mouth, which I considered very well done, and likely to preserve his tooth for some time. He again assured me that I was the first dentist he had ever consulted, and as regards the filling I had noticed, it had occurred in the following manner: Last season, on returning from duck shooting, he remembered while dining on the proceeds of his day's sport, to have bitten on a shot, which was forcibly driven into a cavity existing in his tooth, which had been slightly sensitive prior to this. Finding he could not remove it with a tooth-pick, he had taken to grinding upon it, and as it caused him no pain or trouble, had eaten on it ever since. I told him I did not wish to remove it, as it had done such good service, but asked him to take special notice, and let me know from time to time how it was progressing.

21 Old Steine, Brighton, England.

Correspondence.

"I charge you that this epistle be read."

NOTES FROM EUROPE.

THE twelfth annual meeting of the American Dental Society of Europe, was held for three days at Vevey, Switzerland, beginning on the 26th of August. Dr. Miller, of Berlin, President, in

the chair. There were present Drs. Miller and Foresten, of Berlin; Williams, of Geneva; de Trey and Wetzel, of Vevey; Doremus, of Zurich; Sachs, of Breslau; George, of Frankfort; Edwards, of Madrid; Crane and du Bouchet, of Paris; Elliott, of London; Terry, of Milan; Chamberlaine, of Rome; Gregory, Quintero and Merriam, of Lyons; de Marini, of St. Petersburg; Bodecker, of New York; Bryant, of Bâle; Elliott, of Lucerne, and some French and German dentists.

A paper was read from Dr. Barrett, of Buffalo, on the subject of improper graduations in America. His head and heart are all right on this very important subject. A paper was also read from Dr. Wright, whom we miss very much in our annual gatherings. He was always ready with a paper on some of the leading topics of the day, and his genial and lively manners kept us all in good humor, and prevented us from becoming too serious in our work. But what has been our loss has been your gain, as I see he is actively at work in the societies and the college. The members of this society will receive him with open arms when he gets tired of Cincinnati and wishes to return to Europe.

We were all pleased to have such an indefatigable worker with us as Dr. Bodecker. Dr. Miller gave us some more of the results of his investigations in regard to the etiology of dental caries. At the last meeting in Cologne, the society elected him microscopist, and voted the necessary funds to buy all necessary instruments to enable him to carry out his experiments. Much good for this society is hoped for, and for our science in general. This society seems determined to give him every aid in its power to accomplish this end.

The sum of 500 francs was also voted to the Webb fund in America, for the benefit of the family of one of the brightest and most self-sacrificing men that our profession has been blessed with. A man whose life was sacrificed upon the altar of devotion to the science and the higher standard of excellence in the saving of human teeth, and whose example should be imitated by the rising generation of dentists. His operations on the teeth were the highest style of art and were the more to be admired as it was at the time of the promulgation of the "new departure" nonsense, when the tendency seemed to be towards slovenly operations, and the resorting to the mastics in all difficult fillings. There is nothing so elevates the man or his profession as the ever-

striving for excellence in everything he does. Such a man was our lamented Dr. Webb. A grateful profession will see to it that his family does not suffer. It seems strange that a man like him, whose every operation was made for the best comfort and happiness of his patients, should have died without leaving a competency to his family. But it is the old, old story, that worth is not appreciated until the man is under the sod, while others accumulate a fortune, whose only merit is the faculty of making people believe in them. It is very true that nothing succeeds so well as success.

The afternoon of each day was devoted to clinics in the office of Dr. de Trey, who kindly gave it up for the use of the society. He had also gone to great expense and trouble to provide every modern appliance for demonstrating. Dr. Bodecker gave an exhibition of the Herbst method of filling teeth, with whom he had spent a few weeks seeing him operate. The system consists in burnishing soft cylinders of gold with instruments of different shapes and sizes, made smooth like burnishers, and with the dental engine. The gold is burnished first against the walls of the cavity, and then continued, layer by layer, until the cavity is finished. Dr. Bodecker filled only the cervical wall and the sides of a compound cavity, in a bicuspid, with a matrix, and then finished the remainder with cohesive gold, with the use of the electric and Bonwill mallets. He considers that the best system, and fears that a filling made altogether by the Herbst method would not stand the wear and tear of time. This seemed to be the general opinion of those present. It may be a good thing for forming the foundation of large compound fillings, between the molars and bicuspids, when a matrix is used, but I can see no advantage to be gained by it in any other form of cavity.

The society discussed the subject of improper graduations in America. The committee appointed last year read a good many letters on the subject, from all parts of Europe. From what was brought out it was made plainly and painfully evident to the society that some of our colleges are guilty of graduating persons from Europe without the same requirements as are required, or should be required by any college professing to be scientific, and which should be above grinding out students, for the sake of quantity and the money it may bring to the college, rather than for the sake of quality, and the honor they may bring to their

alma mater. The society seemed very much in earnest and determined to ferret this thing to the bottom, and for the sake of our reputation, as American dentists in Europe, if possible to bring this disgraceful matter to an end, by publishing the names of the guilty colleges, so that we may be spared the shame of seeing our barber, who shaves us to-day, with a sign out to-morrow, as a D. D. S.

This society which had the small beginning of four members, in 1873, now numbers over forty active and twenty honorary members, and is steadily growing in numbers and in usefulness. The next meeting will be in Berlin, the last week in August, 1885, where we hope to meet many more good workers like Dr. Bodecker from our land of good things, and the home of dental progress.

W.

PITTSBURGH, PA., Oct. 21, 1884.

Dr. Berry, President Ohio State Dental Society :

DEAR FRIEND—Your letter requesting my presence, or a paper, at the coming meeting of your State Society, was received in due time. You will please excuse the long delay of my reply; and as I now respond, I do so saying that I feel compelled to deny myself, this year, the pleasure it always gives me to meet with your State Association. Having been benefitted by your meetings in the past, it would seem but simply just for me to make some effort to give something in return, but I must ask to be excused on the ground of incompetency, though I would like to make one or two suggestions; first in behalf of *Prosthetic, or Artificial alias Mechanical Dentistry*, which seems to be beneath the dignity of many who sport the title of D. D. S., (and we fear above the abilities of most of those who so regard that portion of our avocation). As the operative department of our calling has advanced during the past twenty years, the artificial has correspondingly retrograded. While one has progressed, with wondrous rapidity, not in one thing or in one particular line merely, but in everything pertaining to that branch of special surgery, until instruments, appliances and methods have so multiplied, until it seems that the operative dentist has much more to learn than the general surgeon. To all advancement we bid a cordial welcome. Though all such improvements tend towards, yet they will never obviate the necessity for artificial dentures in many cases.

While this has been doing, artificial dentistry has been neglected, and allowed to drift into the hands of the incompetent and ignorant, whose limited knowledge of the business consists, merely in the manipulation required to produce a so-called set of artificial teeth, on a rubber, or a still greater humbug, a celluloid base. Their knowledge of routine work has cost them nothing; and having no profession to maintain, they can afford to undercut, and underbid in fees, until they secure for themselves a patronage of some kind; and the public, or at least a large portion of the public, cannot understand how or why such a state of things exists. And the pretender is called a dentist, and looked upon by many as the equal of any other. To such an extent does this state of affairs exist, that it has become necessary for many competent ones to stoop to those low fees, to get a living for themselves and families.

Having pictured but a faint outline of the reality, we raise the question, is there a remedy? and what is it? Many things suggest themselves alike to the writer, and to those who read. But our main answer is, let there be the same effort that was applied to operative dentistry twenty years ago. At least, let every one give more attention to the artificial department, and elevate the standard beyond the ability of those into whose hands it has been allowed to come, and it will not be long until all can get a fair compensation for their services. The people will be better informed, and wholesale extraction, in a large measure, will be prevented. While we strive to elevate the department of artificial substitutes, let us also maintain our present standard in operative dentistry.

We should be careful in the use of words, when in conversation with our patients or others, in reference to professional services. An improperly chosen word may convey the idea of a trade, or a mechanic in that line, when the proper word would imply skill, having back of it a knowledge of pathology and operative surgery. And in this connection I would refer, particularly, to the word *work*, as one very frequently used, if not improperly, it is certainly not used in good taste. The expressions in which this word is so frequently used will not inspire in the laity, that high-toned admiration for our profession that many of us so much desire.

How often do we hear such expressions as the following: "I

do work for the family;" "I do all their work;" "He gets all his work done here;" "I have been doing their work;" "There can't anybody else work in his mouth;" "The work didn't give satisfaction;" "Brown used to do his work," etc., etc. Many more might be mentioned, but we forbear lest some one might think us to be as exacting and precise as the man who—

"Could a hair divide
'Twixt South and Southwest side."

Very respectfully,

J. G. TEMPLETON.

WINDHAM, PORTAGE Co., OHIO, Sept. 27th, 1884.

Dr. George Watt:

DEAR SIR:—I have been reading your valued JOURNAL from its beginning, and now, I would like to ask if you, or any of its readers, have had experience in cases like the following:

Case 1st. A young man, about 22, came to the office in April, 1878, and wanted a tooth extracted. On examination I found the lower left first molar decayed, on its posterior surface and suppuration had commenced. The patient had been suffering for two days. The tooth was extracted without difficulty, and the patient dismissed. This was Thursday, a. m. On the Sunday following, there was a temperance meeting in the evening, and when the choir sung "Hold the Fort," he left his seat and paraded in front of the congregation, and finally had to be held most of the evening to keep him quiet. The man where he was working, (on a farm), sent him home the first of the week, and he was soon after sent to an insane asylum, where he has been ever since, with no prospect of recovery. He had been apparently well before the tooth began to trouble him. Now what explanation can be given? Did the tooth have anything to do with the trouble?

Case 2nd. A gentleman aged 40, came to have his teeth filled. I found, on examination, that the teeth on the right side of the upper jaw were decaying on the front, from the top of the enamel up on the root. The incisors, cuspid, and bicuspid, and on the lower jaw of the same side, the cuspid and bicuspid were in the same condition. All the teeth left of the median line were sound. How do you explain the cause of this? and also how can

you put the rubber dam on so as to fill with gold as the cavities all lie below the edge of gums.

Yours truly,

E. S. SHAW.

The young man was ready to go deranged; and sometimes an apparently insignificant circumstance excites a dormant tendency to disease into activity. The pain from the aching tooth, and the shock and pain of extraction, acting through the branches of the fifth pair of nerves, may have excited the brain by a reflex influence; and the excitement of the music and eloquence, heard at the meeting, may have aroused the latent diseased germ? but it is not likely that he would have passed for a sane man very long, even if none of these incidents had occurred in his experience. The insanity was probably a *post hoc* rather than a *propter hoc*, in this case.

The decay referred to in the second case may have been encouraged by using but one side of the mouth in mastication. It is possible, however, that some accident may have impaired the health of the affected side during growth, so that the teeth were not so well developed as they might have been. As to the adaptation of the rubber dam, we leave our contributors to advise. Will some one or more of them tell Doctor Shaw how to proceed in the cases he described. The JOURNAL will take pleasure in granting space for the information. In the mean time, such information is readily obtained, usually during society meetings. Does Dr. S. attend them regularly?

Editor's Specials.

"Write the Vision and make it plain."

MORE ON ARSENIC.

AN exchange says that Drs. Vaughan and Dawson, of the University of Michigan, have recently conducted some important experiments with the view of ascertaining if arsenious acid injected into the mouth or rectum after death would diffuse through the body. These observations not only found that such was the case, but that the diffusion was very extensive. The

results of their investigations have, says the *Lancet*, a very important bearing on the question of arsenical poisoning. In the first place, it can no longer be contended that, because arsenic is found in quantity in the fluids and tissues of the body, therefore death was due to its administration; and in the second, a certain amount of immunity is given to the would-be murderer, inasmuch as there is the possibility of covering a homicidal act by using arsenic with the ostensible purpose of preserving or embalming the body. We say possibility, for such a procedure would almost to a certainty be defeated in its aim. At any rate, there would be no chance of success if the post-mortem examination were conducted within a short time of death, when there would be the usual signs of inflammatory action in the alimentary canal; and again, in the face of other circumstantial evidence, the fact of the accused having resorted to such a particular mode of preserving the body would rather tend to confirm suspicion than remove it.

That arsenic contained in the soil may be dissolved in water and conveyed into the body has long been known. The researches of Drs. Vaughan and Dawson show what appears *a priori* as probable. During decomposition the relative humidity of different parts of the body, and of these with surrounding media, is constantly changing. Interstitial currents are passing through the tissues by osmotic action, and this liquid diffusion is naturally increased by the presence of crystalloid substances in solution; nor does it cease until the dialysis ends in an equilibrium of attraction which one fluid has for another, or presumably until post-mortem disintegration is complete.

Dr. Betty, the son of *Salmagundi*, quotes the above in his department of the *Dental Register*, and appropriately adds:—

“We offer the above with the hope that it may throw some light upon the frog story with which nearly every one is familiar; and if it suggests any new ideas to any one, we shall be glad to ventilate them.”

Our own experiment with the piece of beef gave information in the same direction as do the experiments of Drs. Vaughan and Dawson, and it was as carefully tried as theirs could be, and all the details were carefully recorded, such as the weight of the beef, of the arsenic, the time of the application, the time required for complete permeation by the poison, etc. But we are delighted to read of these more recent, and more extensive experiments.

But, as was said sometimes by the lamented Lincoln, this reminds me of a little joke: Once we alluded to our serious loss by the destruction of the records of very many of our experiments, by a small fire. The editor of a certain—no, a rather *uncertain* journal penned in consequence, a short paragraph as insulting to us as he could possibly make it. So marked was it, in this direction, that many of our personal friends are not willing to believe that this editor wrote it, believing it beyond the power of his pen, and written by a party hired for the purpose. We paid but little attention to the stuff: but we have, in kindness, criticized the said editor's periodical when we thought it was suffering for it; and it is amusing to see him squirm, or "becoming a little restive," as he mildly puts it. And now he intimates that we have reached our dotage. But he is quite behind the times. Nearly a quarter of a century ago another publicly consoled himself that he would henceforward escape our criticisms, as we had reached our second childhood. Early one morning we heard our father tell some one that he was sixty years old. The shock destroyed all appetite for breakfast. We expected to be an orphan forthwith, if not sooner; but our good father remained with us till he was eighty-seven, without the slightest sign of dotage. Blood doesn't always *tell*; but it often does. We may be able to do our young brother editor very much good yet. The reader will please pardon this digression.

We remark, again, as we have often done before, that it is surprising that such a flagrant error as the non-permeation of tissue by arsenic should have such a following. It shows the great responsibility of teachers. An error taught by an earnest teacher may do almost incredible mischief to the cause of science before its downward career is arrested. Had it not been believed that this special error had the support of the three Philadelphia professors, two of them reputable chemists, it would not have taken such a hold on the dental profession. Had Prof. Buckingham, of precious memory, said earlier, what he told at the Highland House meeting in Cincinnati, the course of this error would have been at once arrested. His long silence is explained by his dislike of controversy, and even of notoriety, and by a natural disposition to procrastinate. But, as he told us, he never intended to die without stating the full truth. All the time it was his reputation mainly that bolstered up the error.

DEATH AND RESURRECTION.

IN childhood's days we heard a corn-husking song beginning with the expression :

"Some say the devil's dead
And buried in a tan-vat;
I say he rose again
And turned into a ——."

Well, no matter what. There was no indication that the change had improved either his morals or his manners. But in a death and resurrection we are about to consider, we think there will be found a very decided change for the better. It may be already known to many of our readers that the Ohio State Dental Society, on the last day of its late meeting, adopted a resolution to adjourn *sine die*, and thereby, now and here, dissolve this society. This resolution was carried by an almost, if not entirely, unanimous vote. It was offered by Prof. J. Taft, who said, in substance, that the resolution needed no preamble, and he would offer no reasons in favor of its adoption. He believed all the members present had the good sense to see the necessity of such a motion. If any could not, he did not think it worth while to spend time in arguing with them. But little delay occurred. One member said if the society is to die, he would like to hear some reason why it should. But the question was generally called for, and the vote was prompt, and as stated above.

There was a propriety in the motion for dissolution of the society being offered by Dr. Taft. He was active and efficient at its organization; he is conservative and very patient; he could not be kicked into doing anything rash. And when the old society had become to him unbearable, something had to be done. The dissolution occurred just before twilight, gaslight being somewhat needed, but the daylight still answering the necessary purposes. It was fit that it should die in the dark, if the society must die; and die it must, was the verdict of its members present.

Perhaps it would be difficult to tell just why the once good and useful society had to be disbanded. The reason is not to be found in the statement of a probably paid local in one of the Columbus newspapers, that it was forced to dissolve because it turned out two of its members on the charge of unprofessional conduct. It had nothing to do but draw its last breath when it

assembled for the meeting of 1884. One of the members about to be expelled, if our hearing did not deceive, said, as an apparent threat, if you expel us your society will not survive. The threat was not more significant than to have threatened the month of October that, if it gave us an inclement day, it could not survive, but must pass out and give place to November; for the society was reaching its last days as obviously as was the month.

The society's methods of discipline were rather clumsy. This we can say fearlessly, as we prepared the original draft of the constitution and by-laws, and at least half of the code of ethics. But these were prepared in reference to semi-annual meetings; and when the change to but one meeting a year was made, it was inconvenient, if not altogether impracticable, to have charges of misconduct lie over till the next regular meeting.

It is well-known to all that a grindstone wears out if much used. It would not be useful if it did not wear. Its owner intends to wear it out. So, when a professional society is converted into a grindstone, by individual members or cliques, who have axes to grind, it wears out. All the members who have been close observers know that, to some extent, such was the fate of this society. And a natural result of the grinding was that the sharpened axes were used in chopping members who, in any way, had given offence to the owners of the axes.

For the first ten or twelve years of the society's existence it worked smoothly, and accomplished much good. For the past four years it has done very little to advance the cause of professional progress, or to make a good reputation for itself. Indeed, it has not been much short of a police court, or a beer garden. When one member calls another a thief; and that one, equally polite, calls him a liar, and much of the time is spent in bickerings, there must be something done: and, as already said, the rules of discipline being rather tedious, it was felt, by the society's best friends, that the proper course was to disband and promptly reorganize.

But though the society died, perhaps, unexpectedly, it set its house in order and died gracefully. It paid all its bills, and made its will. It elected new officers and installed them, passed a resolution that the papers read at this meeting be regarded as the joint property of the *Dental Register*, and the OHIO STATE JOURNAL OF DENTAL SCIENCE, and gave directions as to the care of its

records. An amendment was offered to include another periodical as joint proprietor of the papers read, but it was lost by a nearly unanimous vote, the members seeming to prefer the two periodicals within the State.

The society had employed a short-hand reporter; and as it was concluded not to issue a volume of transactions, he was paid for his services to the close of the meeting. The *JOURNAL* and the *Register* had each its reporter, but it was regarded as unfortunate to not have the verbatim report of the better discussions, and so the two periodicals made arrangement with the official reporter to write out two copies of his report for the advantage of their reporters; and accordingly, in the January number of the *JOURNAL*, and also the *Register*, a better report of the meeting may be expected than if this course had not been taken. Of course it involved expense to the periodicals; and as there was still a little money in the treasury, we presume this would have been paid for by the society, if the matter had been properly brought up; but in the confusion incident to final dissolution, it was not done.

We have said the society died gracefully. Indeed, we may adopt the language of Christianity, and say that, to all appearance, it died in the full hope of a glorious resurrection. To the surprise of some of us, it was ascertained that the old society had not been incorporated. (We say *old* society for distinction, and will probably refer to the re-organization as the *new* one, without any disrespectful insinuations as to age, being politely sensitive just now in reference to the use of terms, as an impertinent fellow has lately had the impudence to intimate that even *we* are old). Finding, as we have already said, that the old society had never been incorporated, steps were immediately taken to obtain a charter for the new one. Hence some eighteen or twenty late members of the deceased society met, after supper, in the Neil House, and made formal application for a charter. We expect the minutes of this meeting in time for this issue of the *JOURNAL*, but lest it may not reach us in time, we will say that among these charter members, or incorporators, are found such men as Taft, Rehwinkel, Keely, H. A. Smith, James, Watt, Harroun, Butler, Emminger, Harrison, Callahan, Sillito, Betty, Hunter, Berry, Williams, Gibbons and Tabor. Officers were elected; a committee to prepare constitution and by-laws, and a committee to

arrange for the meeting were appointed, and it was agreed to meet a year hence in Chillicothe. Of course all this can be re-enacted at the beginning of the next meeting, to make it legal under the charter.

All power now lies in these charter members, and the character of the men, with but a single exception, guarantees faithfulness in executing the trust committed to them. The experience of the old society will be valuable; and some members found objectionable there will hardly expect membership in the new. Such a state of mind would be, at least, the most pleasant for them; for "Blessed are they that expect nothing, for it doesn't set hard on them to be disappointed."

The thing to do now is for every member of the profession in the State, who is conscious of the fact that he is worthy of the name of dentist, to begin to prepare for the meeting in Chillicothe. Study some professional subject till you are so full of it that your thoughts will overflow. Let the overflow alight on paper in the shape of an essay, long or short. Be ready to express yourself clearly on any subject that may come up. Take steps to bring your neighbor to the meeting. As soon as you get your engagement book for 1885, mark the days of the meeting with the words "State Society," so that you will not forget, and make engagements for those days. Make the meeting a success.

THE ROBINSON REMEDY.

FEW men so far past the ominous "three score and ten" as is Uncle Jerry, get up anything new; and if they do, it is not always something that is useful.

Sometime ago, Dr. J. A. Robinson, one of the fathers in dentistry, who has been our intimate friend for over thirty years, sent us a statement in reference to a chemical combination of carbolic acid and caustic potash, and explained the use of it at some length. Unfortunately he did not prepare his ideas so as to be ready for the printer, as they were mixed in, miscellaneous, with expressions of sympathy and friendship. He told us to put the thoughts in shape if we wished to use them. And we did wish to use them, for several good reasons; but being very busy, not very strong, and suffering a little from political excitement,

their arrangement was put off till we presume he became impatient at our delay, and gave them, in due form, to the *Dental Register*. We never blame Uncle Jerry for anything, and of course, will not for this.

The following is the mode of preparing and using the medicine, as given in his letter to us :

Take equal parts, by weight, of carbolic acid, in crystals, and caustic potash, bray them together in a mortar, till they become a crystalline paste. In using it for pyorrhœa alveolaris, he takes a few fibers of cotton wool, and twists them into a loose textured string, of convenient diameter, applies the medicine to the string, adapts it around the neck of the tooth, and, with a smooth instrument, presses it into the pockets between the tooth and the loose margins of the gum, of course having previously removed all traces of salivary calculus, if any were present. He testifies that the cases are generally cured by one application. He tells us, also, that "it does not produce any pain when applied to the gums, and but very little when used as a painobtunder," in cases of sensitive dentine, for which he regards it as preferable to anything hitherto in use. He has been using it some three years, and his extensive practice has, in that time, given him many opportunities to observe its action. He called it carbolized potash, but now prefers to have it named "The Robinson Remedy ;" and we hope the profession will cheerfully gratify him. His statement to this effect is perhaps more expressive in the *Dental Register* than in his letter to us. He says, "I am now so old that I want this anodyne given as the '*Robinson Remedy*,' so I can stay with the profession when I am gone."

We hope the profession will give this remedy a prompt and fair trial ; and as many as find it convenient to do so, will please report results through this JOURNAL.

There are few things in pharmaceutical chemistry more remarkable than the combination of carbolic acid with the caustic alkalies. Every now and then some wiseacre treats us to the statement that the term carbolic acid is a misnomer,—that in reality it is an alcohol. Some years ago we went into a drug-store owned by a professed analytical chemist, and asked a salesman for an ounce of carbolic acid. The proprietor was standing near, and said, "I'm out of patience with people calling that stuff an acid, when it is only an alcohol. Why do you encourage the

error?" In answer, we said, "But if it will neutralize an alkali?" "It will not do it," said he. We wrote a recipe calling for the acid in combination with water and caustic soda, and gave it to the prescription clerk, telling him to seal it, and set in his window for three days. The fourth day we returned, opened the bottle, applied a few drops of the liquid to the back of one hand, and asked the proprietor what had become of the two caustics, if they had not neutralized each other. He had an immediate errand up stairs, and we saw him no more.

The well-known phenol-sodique is a combination of the acid with caustic soda; and we would not be surprised to learn that the combination with potash is even more useful. We have great faith, theoretically, in its disinfecting properties, and still more in its antiseptic power.

In the *Dental Register*, Dr. R. says, "You know I am somewhat enthusiastic, but I have tried this remedy in a good many cases with splendid results; in fact, it is *an absolute cure*—a miracle, so to speak." But with all the Doctor's enthusiasm, he is a careful and a competent observer; and, therefore, his recommendation is entitled to respect.

In the Doctor's letter to us he says, "I do not know that it unites chemically at once. Perhaps it is only a mixture—a strong solution of potash."

It is probable that the union of the acid and alkali is not very prompt. The acid does not unite rapidly with caustic soda; but it is evident that combination had occurred in every case reported by the doctor, before the application of the medicine to the margins of the gums, for free potash would cause severe pain, and free carbolic acid would not be painless.

The two conditions for which Doctor Robinson uses this medicine are troublesome to the practitioner, and annoying to the patient, one of them not being without danger to life. It is well known that *pyorrhæa alveolaris* often impairs the nutritive process, to such a debilitating extent, that the patient is rendered unfit to resist an attack of disease which, under more favorable circumstances, he would readily overcome. If success, as reported by Doctor R., follow the use of this medicine in the hands of others, we shall probably have to regard it as the crowning contribution to therapeutics, from the dental profession, with the single exception of anæsthesia. We write earnestly on this, because we are very anxious to have the remedy fairly and fully tested.

We go nothing on recipes; but this is a scientific combination, analogous to remedies already in use, and from the nature of its constituents, and the character of their combination, we have reason to expect that it possesses value. Then the testimony of the one introducing it is entitled to respect. We are not in condition to try it ourselves, but we wish our readers to test and report in the JOURNAL.

“THOU HAST ALL SEASONS FOR THINE OWN,
O! DEATH.”

“LEAVES have their time to fall,” and one by one, our friends and professional brethren of the years gone by, drop silently in the pathway of life. Travel fast or slow as we may, the journey ever leads to death. Death! the entrance to that bourne whence but a few have returned.

Not long ago Dr. DAVID W. PERKINS died, a few years our senior, but an intimate friend, the disparity of years being not enough to weaken the bonds of friendly sympathy. And now the reaper, “with his sickle keen” has cut down Doctor Herriott of Indianapolis. Dr. H. was so busy, so stirring, energetic and lively, that no one thought of his dying; but as said in the rhyme of the primer, “Time cuts down all,” a truth well illustrated in the death of Dr. H. When an aged brother, inactive through weight of years, is called home to our Father’s house, it seems like an appropriate thing; but a call on the strong, active and useful, seems to our short-sightedness, all out of place. But He who holds all things in the hollow of his hand and sees the end from the beginning, does only that which is best. A web woven “wrong side” upward presents a shabby appearance to the uneducated eye; but all the time the weaver is aware of the beautiful figures taking shape beneath, in accordance with the will of the designer. In our present sphere of action we can but look on the bewildering side of the web. The friends of Dr. H. sorrow not without hope.

Dr. H. for several years was in active practice in Zanesville, Ohio, afterward he removed to Indianapolis, and engaged in selling dental supplies. He was one of the active workers in the Ohio State Dental Society in its better days, and we believe remained an honorary member after leaving the State. Some die and are not missed. Not so in this case.

AN UNFORTUNATE SHOT!

SEATED at the dining table of a village hotel were a German and an Irishman. Fritz feeling kindly toward his comrade, offered him some *saur kraut*, Pat resented the offer as an insult, and said he would not permit his pig to eat such stinking stuff, and for this he was challenged to mortal combat. It was agreed that the fight should be with shot guns, in a vacant cabin in the middle of a large cow pasture, at the hour of midnight, without seconds and without lights. Pat was the first to arrive as he supposed, and began to reflect that the German had a right to eat his *kraut*, and he had been rash. He believed it his duty to say so. He was ready to make peace; and lest, in a new heat of passion, he might shoot his antagonist he resolved to fire off his gun. Going to the door, the thought struck him that Fritz might be coming, and he might shoot him. He went to the window, and the tinkle of a bell suggested that he might kill an innocent cow. A happy thought struck him; he would shoot up the chimney. With the muzzle under the arch and the breech on the hearth, he pulled the trigger, and down rolled Fritz. Poor Pat was astounded; and so are we. We were afraid to fire from the door or window, lest we might frighten a bear or a "rampant rooster," so we shot up the chimney, and down rolled an editor who apologized for and explained his abrupt arrival by stating that he was "becoming a little restive." On careful inspection, aided by a "crowner's quest," we found him to be the one who had tried to make for himself a *quasi* reputation as a vivisectionist, by suffocating helpless little animals in their own excrements.

"ONE MORE UNFORTUNATE."

THE *New England Journal of Dentistry* has ceased to exist as a separate periodical. We are truly very sorry. The first number pleased us, and we have all along regarded it as one of our most desirable exchanges. Of course we have not always agreed with all that it said, but difference of opinion is no bar to friendship. Our special friends, and most intimate associates, are without exception, among those who hold opinions radically different from our own. The sharpest criticisms we ever encountered came from our own brothers; and we always tried to give

as good as we got, yet never a word of discord marred our brotherly feelings for each other. We make this digression because some one has thought that we did not prize the good *New England Journal*, because we sometimes criticised some of its utterances.

The suspension of the Journal is a surprise. We supposed it to be on a firm and satisfactory financial basis; yet we are now told, by one claiming to know, that its publishers and editors are "without other reward than that which a satisfied conscience bestows." This is sad. A satisfied conscience is a good thing for a man to have; but it is not readily exchanged for bread, and is not current at par in a clothing store.

And again, we have saddening information from the same source. "The self-sacrificing and disinterested labors of its editors have been mocked where they should have received the highest honor." To do such excellent work, as described and to do it for nothing! To do it without reward, and then to be mocked! To us this is as surprising as it is sad. Had we known the guilty parties, as the cruel crime was in progress, our pen would have forgotten mercy, feeble as its effusions may be. It would have been charged with gall and extract of wormwood, to render it fierce against these wretched ingrates. But we were happy in our ignorance while these mockeries were piled upon our brethren. But we are glad that the pens of these worthy editors are neither broken nor blunted; and we hope to hear from them through the *Archives*, while we take pleasure in reminding them that the pages of the *OHIO JOURNAL* are open for their use.

Societies.

"Wherewith one may edify another."

THE OHIO STATE DENTAL SOCIETY.

THIS association was reorganized and chartered, Oct. 31st, 1884. It will be officered as follows: President, C. H. James, of Cincinnati; Vice President, H. H. Harrison, of Cadiz; Secretary, J. R. Callahan, of Hillsboro; Treasurer, G. W. Keely, of Oxford, and will meet on the last Wednesday of Oct., 1885, at Chillicothe, Ohio.

J. R. CALLAHAN, Sec'y.

CENTRAL ILLINOIS DENTAL SOCIETY.

THE following persons were elected officers of the Central Illinois Dental Society: Dr. J. D. Moody, Mendota, President; Dr. E. B. Call, Peoria, Vice President; Dr. C. R. Taylor, Streator, Secretary; Dr. C. H. Sherwood, Winona, Treasurer.

EXECUTIVE COMMITTEE.

Dr. Garrett Newkirk, Chicago; Dr. F. H. McIntosh, Bloomington; Dr. S. F. Duncan, Wilmington.

COMMITTEE ON CODE OF ETHICS.

Dr. Frank Mamin, Ottawa; Dr. E. B. Call, Peoria; Dr. H. H. Townsend, Pontiac.

Books and Pamphlets.

THE PHYSICIANS VISITING LIST—(LINDSAY AND BLACKISTON'S) for 1885. Philadelphia; P. Blackiston, Son and Co., 1012 Walnut Street. Sold by all Booksellers and Druggists.

WE thought the issue for 1884 was about perfect, but this is better. It starts with an almanac for 1885 and the first half of 1886; next a table of signs, then Marshall Hall's ready method in asphyxia; followed by Poisons and antitodes, the Metric system of weights and measures, a Posological table rewritten and conformable to the new revision of the U. S. Pharmacopœia; list of new remedies and nearly everything else on which a physician wishes to refresh his memory. Of course it has the usual visiting blanks and memorandum pages. It is the best issued.

A COMPLETE INDEX TO THE DENTAL COSMOS.—Compiled by JAMES E. DEXTER, M. D. S; at the instance of A. L. NORTHROP, D. D. S., M. D. S. Vols. I to XXIV., Inclusive. Philadelphia; The S. S. White Dental Mfg Company, 1883.

A LITTLE boy with a squeaking voice was crying on the cars, "Warm mince pies!" An aged man bought one. As the boy was almost to the next car he called out, "Here, boy! this pie is frozen." "It's a cold day sir," said the boy. "But you call 'warm

mince pies,' sir." "That's the NAME of 'em," said the boy, and the colloquy ended.

But in this case the *name* is the *nature* of the article. "A *Complete Index*." Yea, verily, and it could not be more so. If you have but two volumes of the Dental Cosmos, you cannot afford to be without the Index. It is good, if you have but *one* volume of the twenty-four; for it is far better than the tables of monthly contents, or the annual index of the volume.

It is a finely gotten up book of some 367 pages, paper, type, binding, all in accordance with S.S.W. Get the book, as sure as you have any of the Cosmos.

"THE BABY'S DEAD!"

AND but few sadder sentences can be uttered. Let the old die; but the baby!

On the 16th of October Cora Betty, daughter of Dr. E. G. and Cora B. Betty, and twin sister of Lida, gone before, April 30th, died of capillary bronchitis. It seems but yesterday that Dr. B. was in our office, alone, young, boyish in his gleefulness, full of youthful vigor, and apparently as thoughtless as if sorrow could never come. But he is the head of a household—wife and three children, one here and two yonder. Verily there are changes in life. Sometimes the shepherd carries the lambs in his arms to induce the sheep to follow. The afflicted parents have our sincere sympathy.

HOW TO DISCONTINUE A JOURNAL.—You have an undoubted right to stop a paper when you feel disposed, *upon the payment of all arrearages*. Do not hesitate to do so on account of tenderness for the editor. When you discontinue a paper do so manfully; don't throw it back to the postmaster and say, "I don't want it any longer!" and have "refused" written on the margin, and have the paper returned to the publisher. No gentleman ever stopped his paper in that way, no matter if his head is covered with gray hairs which should be honorable. If you do not longer wish to receive a paper, write a note to the publisher, like a man, saying so; and be sure that arrearages are all paid. This is published as a guide to the reader when he wishes to discontinue other journals; of course no one ever discontinues *this journal*.—GAILLARD.

